THE AMERICAN GAS LIGHT JOURNAL

PUBLISHING OFFICE No. 42 PINE STREET

DEVOTED TO THE INTERESTS OF ILLUMINATION, HEATING, MECHANICAL, CHEMICAL AND GENERAL SCIENCE.

VOLUME LXXXVI., No. 16. Whole No. 1,663. | NEW YORK, MONDAY, APRIL 22, 1907. | $3 PER ANNUM, IN ADVANCE.

A. M. CALLENDER & CO., Proprietors. THOMAS J. CUNNINGHAM, ELBERT P. CALLENDER, Editors.

ENTERED AT THE POST OFFICE AT NEW YORK, N. Y., AS SECOND-CLASS MATTER.

Published on each Monday of the year, at No. 42 Pine Street, New York.

Telephone.—2996 John.

Terms of Subscription, Including Postage.—For the United States and Canada, $3 per annum. European countries, $5 (£1—25 francs).

The Public Lighting Tables of the American Meter Company will be found in the page advertisement of that Company.

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BRIEFLY TOLD.

MR. MACKIE'S HONEST BELIEF.—Mr. A. D. Mackie, who is the bustling Manager of the Commercial Departments of the Gas and Electric Companies of Springfield and Peoria, Ills., read an excellent paper on the subject of "New Business Methods" at the meeting last month of the Illinois Gas Association, and its matter will be found elsewhere in the current issue of the JOURNAL. We say in cool judgment that the paper is an excellent one, and we have not the slightest doubt that its presentations and its thought-provokers will bear good fruit. Especially so as its writer has, as he would likely himself say, "made good" in the commercial departments of the Companies with which he is connected. However, we feel constrained to take issue with him over one quite material point to which he evidently points with pride, and in this differing we feel quite sure we will be supported by not only all the gas engineers but by a round majority of the commercial engineers as well—we do not quite know who created or coined the term "commercial engineers," but in that it is an accredited title with the salesmen, we will accept it as applicable, for this time at any rate. We hope, however, that the bookkeepers will hold off for a reasonable period, ere they too join, in nomenclature at least, the ranks of those whose concerted doings could, it was once acclaimed, move the world. Our objection attaches to an opening paragraph of Mr. Mackie's paper. Its lines are these:

"It was only a few years ago that the gas manager devoted the greater portion of his time and energy to the manufacturing end of the gas business. Matters pertaining to the installation of apparatus for the taking away of the "spirit of the coal," and the different processes to which it is subjected before it reaches the distribution arteries, were to him of paramount importance. But he is now awakening to the fact that it is not so much to the man who makes the goods as to the man who sells them, he must look for the doughnuts; not the manufacturing engineer but the commercial engineer is the man behind the gun, and the man to whom he must look for the dividends. And in saying this I speak advisedly and with hearty appreciation of the man at the retorts, for without him to produce a good, first-class article, there would be very little use for the commercial man. Indeed, I will give the manufacturing engineer credit for being a very close second, and almost as important an adjunct to the gas world as the commercial engineer."

Enthusiasm accounts in a way for much and emotionalism counts for more, but neither is a safe guide; in fact, youth in time discovers this, often to its sorrow. It is true, one in the exuberance of youthful force discovers new things, but it is further sadly true that in the vortex of the discovery are many raging gulfs, and sadder still then it is that the youthful discoverer's bark is wrecked. The discovery, however, goes on to development, and the developers are the older ones, who were (as it were) quite a while on the job of keeping the old craft safely afloat. No; it cannot be otherwise. Before you have anything to sell that thing must have been found or have been made, and we would like to have shown to us when or where it was that the agent was superior to the creator, from any point of view. That sight has not been seen to now, in which view we will have to submit the statement that the engineer must lead the procession that mutually strives for the going on of the general good, even as the horse's labor is to "move the cart," whether that noble animal is between the shafts, or is attempting to push the vehicle along.

CURRENT COMMENT.—

THE City Gas Company, of Beatrice, Nev., will be sold under a decree of foreclosure, at a special Master's sale the morning of the 9th prox. Whoever buys it will have to reconstruct it completely, as the physical condition thereof is hopeless. The generating system consists of an oil gas set of the Patton mediaeval style.

THE Laclede Gas Light Company, of St. Louis, Mo., will on May 1st, put into operation a new system of collecting its bills. As heretofore the discount period and the rate as well will remain unchanged, but the expiration days of the discount time will be altered, the city having been divided into 25 districts, instead of 3. Under the old system (we think it dates from 1877) the city was divided into 3 districts—the north, central and southern—and the discount expiration days fell on the 10th, 20th or 30th days of the month, respectively. Under the changed plan all meters in a district are to be read on the same day, all bills being delivered the third day from the reading, and made payable 10 days thereafter, the interim being the discount period. The number of the district is the day of the month on which the discount time expires.

SMITHSONIAN DEPOSIT.

While on the mention of the Laclede Company's doings it is further noted that a deed was filed about a week ago announcing that the property of all kinds belonging to the Carondelet Gas Light Company, of St. Louis, had been transferred to the Laclede Company.

THE Danville (Quebec) Water, Light and Power Company has been incorporated, with a capital of $80,000. Its main offices are to be located in Danville.

THE Committee on Cities, Wisconsin State Assembly, has reported that consideration of the bill to prohibit the Milwaukee Gas Light Company from selling, renting or leasing gas stoves shall be indefinitely postponed. To show the feeling of the Committee respecting this, to say the least, grotesque measure, even Mr. Aldridge (who is a Socialist) voted to consign it to quietude.

A SUIT which is attracting much attention in engineering circles is that brought in the District Court, of Burlington, Ia., in which the administrators of the estate of one George Morris have sued the Peoples Gas and Electric Company, of Burlington, for damages in the sum of $10,000. The prayer narrates that, on the 4th day of last January, Morris was employed in the oil house of the Burlington Railroad in Burlington. In taking hold of a gallon measure his hand came in contact with an electric light bulb, from whence he received a shock that afterwards caused his death. The prayer goes on to recite that the cause of the death of Morris was imperfect and faulty wiring of the premises in the instance of the electric lighting equipment, included in which charge were the items of lack of insulation, failure to ground transformer, neglect to provide a proper guard, and failure to use a proper non-conducting guard.

THE Rome (N. Y.) Gas Light Company, through a well-organized and not cumbersome plan of canvassing, reports that about all of its surplus coke has been disposed of for next winter's domestic fuel consumption, at prices that are certainly on the remunerative side. Superintendent Field will undoubtedly be pleased to reply to any inquiry concerning how the trading was accomplished.

MR. WM. DOWNS, the New York representative of the Green Fuel Economizer Company, wishes us to say that the New York offices of that Company have been removed from No. 74 Cortlandt street to the handsome, modern building, No. 90 West street. The Company "has been in" Cortlandt street since 1889, but the conveniences, to say nothing of the elegancies of its new quarters, are so great that they outweigh any qualms that may occur through the rememberings of the old abode.

THE largest single taxpaying corporation in beautiful New Haven, Conn., is the New Haven Gas Light Company, which is figured on the assessment rolls as the possessor of taxable property in the sum of $2,722,542.

AS was suggested in the JOURNAL some time ago, the new Manager of the Atlanta (Ga.) Gas Light Company is Mr. R. Congdon. He became connected with the Atlanta Company in 1894, resigning from the Frederick (Md.) Company to go to the first-named point. If we mistake not, his first service in the gas line was with the Lawrence (Mass.) Company.

MR. D. K. CRIGHTON has been appointed Engineer-in-Chief of the lighting properties controlled by the Geist syndicate, with headquarters in Chicago, assisted by Mr. Charles H. Pither, who resigns the position of Secretary to the Lansing (Mich.) Fuel and Gas Company. Mr. Pither's successor in Lansing is Mr. Carlton Geist.

MR. HENRY AUNER, for some years Superintendent of the Middletown (N. Y.) Gas Company, and who later on occupied like position with the Companies at Riverton, N. Y., and London, O., has returned to Middletown, where he has established himself in the gasfitting and plumbing trades. He certainly should make a "good go" of his latest business venture.

THE Chattanooga (Tenn.) Gas Company, after much arguing, has caused the authorities in charge of the Custom House in that city to illuminate the Customs' buildings by means of Humphrey gas arc lights from cellar to dome.

THE April dated issue of *Gas News*, which publication as we stated some time ago, is "Issued every little while," by the Gas Department of the Public Service Corporation of New Jersey, is at hand. It is quite up in interest to the issues that preceded it, which statement means that it is readable, instructive and interesting.

WRITE to the General Gas Light Company, of Kalamazoo, Mich., for a copy of its last pamphlet on the subject of gasoline lamps and how to replace them. It is well worth perusing.

[Furnished by the Secretary.]

PROCEEDINGS, THIRD ANNUAL MEETING, ILLINOIS GAS ASSOCIATION.

HELD IN NATIONAL HOTEL, PEORIA, ILLS., MARCH 20 AND 21, 1907.

FIRST DAY—MORNING SESSION.

The President, Mr. J. H. Eustace, called the meeting to order at 10:30 A.M., March 20, 1907, and said: It affords me great pleasure to introduce to you this morning the Hon. A. B. Tolson, Mayor of Peoria, who will now address you. [Applause.]

ADDRESS OF MAYOR TOLSON.

The Mayor—Mr. President and Gentlemen of the Illinois Gas Association: I can assure you that the city of Peoria, through its Mayor, welcomes you heart and soul. We are proud of the fact you have selected Peoria as the place of holding your meeting. The one thing we Peorians are proud of is the fact that every man does as he pleases here, as long as he does not interfere with the rights of other men and as long as he uses gas from the Peoria Gas and Electric Company. [Laughter.] Regarding individual rights and privileges, as long as you keep within reasonable bounds of the law you need fear nothing while you are in Peoria. [Applause.] The heart of the Mayor is larger than his person or his pocketbook, as the Mayor's pen is always at the service of the poor, wandering soul that goes wrong without meaning it. [Applause.] I understand the object of this Association is to promote the kindly fellowship that should exist between men in the same line of business, all actuated with the same desire—viz., to adopt modern methods so you can make more money for the companies you represent and in the end give better service and please to a greater extent the people. These are certainly objects that all of us in any line of business are desirous of obtaining, and I believe in such meetings as this every year, or oftener for that matter. I believe in the exchange of thoughts and ideas and in the explanation of methods in vogue in different cities, and each and all of us can be benefited by these associations.

I want to cite to you one of the things I presume all of your companies are up against from time to time. The conditions that existed in Peoria a short time ago—within the last 2 or 3 years—were: Everybody was damning the Gas Company, just as they are the Mayor to-day, or any other man who ever acted in that capacity in Peoria, possibly—they could not see any good in the Company. They said it was a soulless corporation with the object in view of freezing out all legitimate enterprises and squeezing the people. The time came when the conflicting interests between the city and the Gas Company had to be adjusted, and the motive that suggested that adjustment was a desire on the part of the city and on the part of the Company to reach an equitable understanding and some mutual ground whereby those differences could be adjusted and a satisfactory agreement arrived at. Mr. Schmidt, Manager of the Peoria Gas and Electric Company, assumed what in the beginning appeared to be a stupendous task, that of bringing those conflicting interests together, but in the end success crowned his efforts. He did it in this way—and I commend his course to every one of you gentlemen representing such interests in the State of Illinois. He took the people of the city into his confidence and by virtue of his frankness with them inspired the spirit that in the end brought out the desired result. He started with the idea that his Company only wanted fair treatment from the city, that it was entitled to a fair return on its investment. Everybody conceded that and in the end the solution of the whole proposition in the city of Peoria was left absolutely to a Citizens' Committee, selected at a mass meeting and representing every civic organization in the city, made up of business men, representing over 8,000 voters of the city out of a total of 13,000 voters, and that committee, after fully considering the matter, prepared an ordinance which was submitted to the City Council and passed, thereby settling a question that had alienated even the closest ties of friendship in the city of Peoria. I commend this course to you gentlemen representing your various companies in your respective cities. I say if you have trouble with your ordinance rights or franchise rights go to the people in a spirit of fairness, saying that the company is entitled to such and such considerations and let those considerations be fair; say to them, now you people who have the best interests of your city at heart get together with us and fix up some proposition, cut out politics, eliminate every factional interest and strife of all kinds, and in the end there is not a City Council in the State, if supported and backed by the body politic of their respective cities, but that will do the bidding of their business men when the matter comes before the

Council to exercise that right. As I said 2 years ago, men, women and children were damning the Peoria Gas and Electric Company, but by adopting this method and inspiring confidence on the part of the people as to what the Company proposed to do, I will say that to-day the Company has 10 friends where it had a unit 2 years ago. [Applause.] I commend this policy to every public utility company to-day in the State of Illinois, or in any other Ssate, as the best and proper way to settle these differences.

I assured you, gentlemen, in the beginning that, as the representative of 80,000 people in the city of Peoria, we welcome you. I also promised you executive clemency, and now, on behalf of the citizens of Peoria, I extend you every hospitality within their gift. To those of you who are on the water wagon I will say that the Illinois river is 3 feet higher than it was last week in honor of your coming. [Laughter and applause.] To those of you who indulge in that peculiar beverage known to us Germans, I will say to you the breweries are working over time, and to you who believe in that good, old-fashioned drink, commonly known to us Democrats as whiskey, I will say that every distillery and rectifying house is working night and day. [Laughter.] I hope, gentlemen, your stay in our city will be pleasant; that your deliberations will be productive of great good to your respective localities and to you as individuals representing those localities. Anything further I can do as the Mayor of the city command me and I will do it. I hope if you are satisfied with your treatment here and with the hospitality of our citizens you will, the last thing you do before adjourning, vote to hold your next annual meeting in this city. [Great applause.]

Senator Shumway's Response.

The President asked Senator Shumway, of Taylorville, to respond on behalf of the Association to the courteous address of welcome by the Mayor of Peoria.

Senator J. M. C. Shumway—Mr. President and Gentlemen of the Convention: I feel very highly honored to be asked to respond upon this occasion and show a slight appreciation of the cordial welcome given us by the Mayor of Peoria. This practice of welcoming conventions to the city of Peoria seems to have become a common matter to the Mayor, for I understand a convention is held here every 24 hours. I could not help but think, when the Mayor spoke about the breweries working over time, that perhaps the Mayor was working over time. This is about the third occasion I have been in Peoria personally attending conventions. The first time I was asked to respond to the address of welcome of the Mayor, and I took some pains to round out a few sentences of rather a touching character which I thought would fit the occasion, but when I arrived at the convention hall, Mr. Moore, the City Attorney, welcomed us in the place of the Mayor, and in his remarks he went on to state that the Mayor was out in the cemetery. [Laughter.] Well, I immediately began to change my ideas as to the answer I should make to the welcoming address and attempted to work up a few touching remarks about the demise of the Mayor in the way of paying a tribute to his memory, although I had never heard of him before. I started in pretty good shape, I thought, to land him all right in the cemetery, when Mr. Moore got up and stopped me, saying: "Mr. Shumway, I didn't mean to say that the Mayor was dead. He is simply attending the funeral of one of his friends." [Laughter.] Then I tacked and changed my course again and did my best to bring him to life again. I am glad to meet him to-day and hear him express his good wishes for the gas business and so freely offer us the liberties of the city. I assure you, Mr. Mayor, notwithstanding the fact that these men at home are considered by the local people a hard batch of bummers, they are in fact good men and appreciate the warm welcome you have given them; and while they are gentlemen of high character and don't need to be watched by your policemen here, it is well enough they should feel, while they are viewing your city, that they have all the liberties the executive officer of the city can possibly give them. I am personally glad, and I know all these gentlemen are also, to know your feeling towards your home Gas Company, and it touched me to hear the tribute you paid to my friend, Mr. Schmidt. I know if he were not so modest he would be glad to take my place in responding to the eulogy you paid him in your address. I think, however, Mr. Schmidt is entirely worthy of the statements expressed by you. I wish all of the cities and towns in the State of Illinois and their Mayors entertained the same ideas you do about the gas and public utility companies in the various cities and towns. If we could only get and stay close to the people, invite their confidence and be worthy of it, it would be all right to follow the line laid out by your Honor in attempting to perpetuate our franchises and receive the plaudits of the people; but public utility companies that are popular are very rare, and if for a time one is popular it is simply a spasmodic popularity. Ninety-nine times out of 100 their franchise is only extended by the hardest kind of a fight against the so-called popular feeling. It is a matter that has injected itself into politics not only in this State but in all the States in the Union. To abuse a corporation is popular with the masses and it unfortunately is true. If your idea could be followed out and the cities and public utility companies could be brought together the companies might be a great benefit to the community; but that is not the way it is now. Personally and in behalf of the Illinois Gas Association I thank you for your kind welcome. [Applause.]

The President—Your President has not prepared an address for this occasion. We have several very excellent papers to be presented that are of great length and I feel that the time usually occupied in the delivery of an address can be used to better advantage in the discussion of these papers. It is very gratifying indeed to see such an attendance of the members of the Association. To my mind it gives great promise of the future. This Association is young in years, but I have hope and confidence that next year will see a very decided increase in its membership, and I earnestly hope that all here present will labor earnestly and hard towards that end. I notice quite a number of men engaged in the appliance business among those present. I want to extend to them a hearty welcome on behalf of the Association and say to them they will be at all times welcome to our meetings. We are now ready for the business of the Association. The first business in order is the

Report of the Secretary-Treasurer.

The Secretary—I have some telegrams and several letters from gentlemen to whom I extended invitations to be present at this meeting on behalf of the Association. I will read the names of the writers only.

Telegrams From.

T. C. Jones, Treasurer, American Gas Institute, Delaware, O.

E. G. Pratt, Consulting Engineer, Chicago, Ills.

Jas. Dunbar, Secretary, American Gas Institute, New Albany, Ind.

Letters From.

Walton Clark, President, AmericanGas Institute, Philadelphia, Pa.

E. H. Palmer. President, Empire State Gas and Electric Association, Elmira, N. Y.

Walter G. Africa, Secretary, Guild of Gas Managers, New England, Manchester, N. H.

J. R. Cravath, Secretary, Illuminating Engineering Society, Pittsburgh, Pa.

George McLean, President, Iowa Gas Association, Dubuque, Ia.

G. I. Vincent, Secretary and Treasurer, Iowa Gas Association, Des Moines, Ia.

V. T. Dewey, President, Michigan Gas Association, Detroit, Mich.

Wm. J. Clark, President, National Commercial Gas Association, New York city.

L. S. Bigelow, Secretary and Treasurer, National Commercial Gas Association, New York city.

K. M. Mitchell, President, Natural Gas Association, St. Joseph, Mo.

J. H. Dunkel, Secretary and Treasurer, Natural Gas Association, Lawrence, Kas.

Wm. McGregor, President, New England Association Gas Engineers, Pawtucket, R. I.

N. W. Gifford, Secretary and Treasurer, New England Association Gas Engineers, E. Boston, Mass.

J. D. Nicholson, Secretary and Treasurer, Kansas Gas, Water and Electric Light Association, Newton, Kas.

John Corscott, President, Wisconsin Gas Association, Madison, Wis.

H. H. Hyde, Secretary and Treasurer, Wisconsin Gas Association, Racine, Wis.

The letters and telegrams all express the best of goodwill to our Association and the regret of the writers over their inability to be present.

Report of Auditing Committee.

The President—The next order of business is the report of the Auditing Committee.

Mr. H. L. Rice, of Aurora, presented the report of the Auditing Committee as follows:

We, the Committee, appointed to audit the Secretary-Treasurer's accounts, beg to report that we find them correct.

H. L. Rice,
Z. T. F. Runner,
E. E. Morrell,
} Committee.

New Business.

The President—Is there anything under the head of "New Business?"

Mr. H. L. Rice—The Executive Committee recommends the follow-

ing by-laws. They have been properly presented to the Association by letter giving the necessary form of notice.

BY-LAWS.—*As Amended March* 20, 1907.

1. *Name.*—The name of this organization shall be Illinois Gas Association.

2. *Object.*—The object of this Association shall be the promotion of the best interests of the gas business in the territory covered by the Association, along lines in harmony with the policy of the American Gas Institute.

3. *Membership.*—Members shall be of two classes; members and junior members.

(a.) Any man actively engaged in a position of responsibility with any gas company in the territory covered by this Association shall be eligible as a member.

(b.) Any man engaged as a minor employee with any gas company in the territory covered by this Association shall be eligible as a junior member.

It shall be the duty of the Executive Committee to determine which class any applicant is eligible to join. Members of either class shall be elected only by a majority vote of the Association, at any special or regular meeting.

4. *Voting.*—All members not in arrears for dues, may be present and participate in the discussion and proceedings of any regular or special meeting, and may vote on all questions, except such questions as concern the welfare of the companies in the territory covered by this Association as a whole, on which questions the voting power shall be vested solely in the companies, each company to designate one authorized member with voting power.

Junior members not in arrears for dues may be present and participate in the discussions and proceedings of any regular or special meeting, but may not vote.

5. *Officers.*—The officers of the Association shall be a President, a Vice-President, a Secretary and a Treasurer. The offices of Secretary and Treasurer may be held by one person.

5a. *Executive Committee.*—An Executive Committee of eight, of which the President, Vice-President and Secretary shall be ex-officio members, shall be elected annually.

6. *Elections.*—The officers of the Association shall be elected by ballot, at the annual meetings, and shall hold office for 1 year, or until their successors shall have been duly elected and qualified.

7. *Dues.*—The dues shall be $5 annually for members, and $2 annually for junior members. The year of the Association shall begin on the 1st day of January. Annual dues shall be payable by the members to the Secretary on on before July 1st of each year. Any member neglecting to pay these annual dues shall, at the end of the calendar year, thereby forfeit his membership and shall be dropped from the membership roll. Any member dropped from the Association, because of non-payment of dues, may be reinstated only by a majority vote of the Executive Committee upon payment of back dues.

8. *Meetings.*—(a) The annual meeting of the Association shall be held the third week in March, subject to call by the Executive Committee.

(b) Special meetings may be called by the President or Executive Committee.

(c) Special meetings shall be called by the President upon the written request of eight regular members.

9. *Quorum.*—(a) Eight members shall constitute a quorum for the transaction of business at any annual or special meeting.

(b) Three members of the Executive Committee shall constitute a quorum for the transaction of the business of the Executive Committee.

10. *Duties of the President.*—The President shall preside at all meetings of the Association and of the Executive Committee. He shall countersign all checks and perform such other duties as usually devolve upon the office.

11. *Duties of the Vice-President,*—The Vice-President shall perform the duties of the President in case of his absence or inability to act.

12. *Duties of the Secretary.*—The Secretary shall keep a record of all meetings of the Association and of the Executive Committee. He shall notify the regular members of annual and special meetings 10 days in advance of such meetings, if practicable. He shall collect all dues and turn the money over to the Treasurer. He shall certify all bills upon order of the Executive Committee, and shall write out checks for same to be signed by the Treasurer and countersigned by the President. He shall keep the accounts of the Association and perform such other duties as usually devolve upon the office.

13. *Duties of the Treasurer,*—The Treasurer shall have custody of all moneys belonging to the Association, which he shall deposit in accordance with the instructions of the Executive Committee. He shall sign checks for the payment of obligations certified to by the Secretary, as having been ordered paid by the Executive Committee, which checks shall be countersigned by the President. He may be required by the Executive Committee to give bond, the cost of which shall be borne by the Association.

14. *Duties of the Executive Committee.*—The Executive Committee shall look after the general interests of the Association. It may make rules not in conflict with the by-laws of the Association. It shall audit and order paid all obligations of the Association.

15. *Amendments.*—These by-laws may be amended by a two-thirds vote of the regular members present at any regular or special meeting.

Mr. Rice—On behalf of the Executive Committee I move these amendments to the by-laws be adopted, to take effect at the close of this meeting. [Seconded.]

Sen. Shumway—I am inclined to think that a change in the by-laws of any Association should be well considered and it would only take a little time to pass on the amendments separately. There is some question whether it would be best to have a mixed membership in this Association and we might want to discuss that amendment. I, therefore, suggest that Mr. Rice read the amendments seriatim, and we pass on them separately.

Mr. Rice read Section II. of the proposed amendments and, on motion, the same was seconded and adopted.

Mr. Rice read Section III. of said amendments.

Sen. Shumway—I would like to get the idea of the Committee as to why it desires to make that innovation in the membership of the Association by making junior members. Of what use would it be to have that sort of membership unless it be to increase the Association funds. It seems to me, as it is now, any company can send as many employees as it desires to the annual conventions without power to vote, and this amendment does not enlarge the voting capacity of the Association a particle. If the object is to increase the membership and membership fees I have nothing to offer in regard to the matter. I would like you to get all the money you can.

Mr. Rice—The object of this section is to give a membership to every man who comes to these meetings. The Executive Committee has experienced within the last year the fact that a large number of men within our territory, whom we would like to have with us, do not feel they are members of the Association. The Executive Committee has experienced the fact it is difficult to get such men to work for the Association and present papers to the Association when they are only members in an indirect way, even through their companies. We have also experienced the fact that we have a very limited revenue and that there will be no objection. In fact, two of the largest companies in the State said they had no objection whatever to having their men join as individuals and pay dues. As I understand Senator Shumway, he would be very glad to have our revenue increased in that way and that is one of the objects of this amendment. The principal object, however, is to vest our membership in the members, to make every gas man here present a member in himself of this Association so he will feel he has a personal interest in the Association and will do all the work he can for it. The majority of the Gas Associations of this country have recognized the fact that it is advantageous for the men to feel they are in themselves members of their Association, and the Executive Committee felt there could not be any serious objection to give the individual men in this State that qualification.

Mr. E. G. Schmidt—I agree with the Senator that we should be careful about adopting anything until we know it will benefit the Association. If the companies are not going to pay the dues of the men, and the men will be obliged to pay their dues, will not some of them hesitate to pay, feeling they cannot attend the meetings?

Mr. H. L. Rice—I have not explained this matter of Junior Members. It was felt a few men would be benefited by junior membership in the Association. Such men might be of all classes; for instance, cadet engineers in the larger companies or men who occupy responsible positions in the capacity of foremen in the smaller companies. The American Gas Light Association for a number of years maintained a class of Junior memberships and it was very advantageous to the young men and a help to the Association, and in time the Junior members were promoted to regular membership. It is also the intention of this section that any Junior member can apply to the Executive Committee for transfer at any time to regular and active membership.

The President—I would like to hear from Mr. Runner on this subject.

Mr. Runner—I don't know that I can say anything that will make it

clearer than what Mr. Rice said. I believe there is a place for a number of men that would fill these positions as Junior members. I have two in my employ who are not eligible for membership in the Association, but who would be eligible for membership as Junior members and later on could be promoted to full membership.

Senator Shumway—Would it suit the committee to allow these Junior members to come in without the payment of dues, in order to allow the minor employees to get into the Association and reap the benefits of its deliberations? It seems to me you are placing the minor employees in a position where they will be called upon to pay dues to join the Association and when they come in they will have no rights. As it is now the companies send them as a usual thing and don't expect anything except the education they receive at the convention. They don't expect to participate in the deliberations of the convention and they are satisfied, as the company pays the bills. In this amendment you have those men paying dues but without the privilege of voting. It is a question in my mind whether it will prove of benefit to the Association or a handicap in the long run. If Mr. Rice knows of any society where such a membership proved to be a success I would like to have him refer to it briefly. I am willing enough to have this innovation tried so far as that is concerned.

Mr. H. L. Rice—If the Senator will wait until Sec. 7 of the proposed amendments is read and notices what a trifling price is to be paid as dues, I think he will agree that the proposition is all right.

Senator Shumway—Do not these Junior members pay any initiation fee?

Mr. H. L. Rice—None whatever.

Senator Shumway—I withdraw my objection.

On motion Sec. 3 of the amendments was adopted. Sec. 4 of the proposed amendments was read and adopted, as was also Sec. 5. Sec. 7 of the proposed amendments was then read,

The President—I would like to hear from Mr. Schmidt on this Section.

Mr. Schmidt—I do not know that I have anything to say about it. It is a question of whether we want to get the young men here. The question in my mind is whether some of the companies would pay their dues and whether the young men can afford to pay dues. No company, especially a small one, can afford to send all its men here every year. As it is, some come one year and some the next. I don't think Mr. Runner would let all of his men attend this meeting. I, for one, would rather pay for a certain number of full memberships from our company and leave the junior employees free to come without paying any dues. Let them come here for nothing, if you want to educate them and help them. It is going to be hard to determine what a junior or regular member is under this amendment. If you leave it to the Executive Committee how is the line to be drawn? A distinction should be made. Say employees, like superintendents, ought to be regular members and pay dues and the companies pay their dues, and the junior members be allowed to come in without paying anything. I would like to hear from some of the managers of smaller companies on that question.

Mr. Quackenbush—It occurs to me you might have in your company one or two men who might be eligible to junior membership and who had time to prepare a paper for a meeting. I think if those men were junior members of the Association they would be more ambitious in helping prepare papers and get their share of the credit in so doing than if they were not members at all. The question of dues is I think small enough, to be eliminated altogether from our thoughts, because the extra expense will be ten times what the dues will amount to.

The President—We would like to hear from Mr. Morrell.

Mr. Morrell—I do not know that I can add anything to what has been said. It strikes me if you have Junior members without the payment of any dues they are members indefinitely or members for all time. The little item of $3 a year for the dues of those members would go a long way towards furnishing each one with a copy of the proceedings and other information the Secretary is sending out from time to time. It strikes me if you are going to have Junior members they should pay dues.

Mr. Fish—Is it not a fact that the largest electric association in the country has classified members and Junior members who are paying dues? That association is a number of years old and I believe is the largest in the country, and it found the plan very beneficial. Again, a gift is not considered of much value. If you charge small dues they will look upon it as so much money paid out for value received, and they will take more interest than if they were just sent here by their company free of expense. I think that Junior membership will be a good thing, but I believe they ought to pay dues in small amount or enough to cover the extra expense such membership would entail.

Mr. Schmidt—How is Mr. Rice going to grade the Senior and Junior members?

Mr. Rice—That would be left to the Executive Committee entirely. That Committee would have to decide who are minor employees. I think the Committee could classify them easily, although there might be uncertainty at times. The Executive Committee could correspond with the employers of any man and thus find out just what sort of work he was doing .I would suggest, Mr. President, a compromise, by reducing the dues of Junior members to $1. I move as an amendment that the proposed dues of Junior members be reduced from $3 to $2 per year. [Seconded and adopted.]

Mr. Persons—The supply men present have been very cordially invited to attend this meeting, but as there seems to be some question among them as to whether they will be permitted to take part in the discussions on the several papers to be read I would like to ask whether we will be allowed to take part in the discussions if we desire to?

The President—I think the supply men should be granted the privilege of entering into the discussions.

Mr. Schmidt moved that the supply men present be granted the privilege of entering into the discussions. [Seconded and adopted.]

The President—If there is nothing further under the head of "New Business," we will listen to the paper, by Mr. W. R. Rhoades, of Springfield, on

COAL AS A FUEL FOR FIRING GAS BENCHES.

Assuming that the item of labor in the retort house has been brought to the best working basis, the subject of next importance, or possibly even first importance, is that of bench fuel—the results that can be obtained from each of the various substances used, and their comparative cost.

This is a question of many sides, changing with local conditions and largely controlled by the relative cost of material in present use and the substitute which we wish to try. Of course, the one giving the best results at least cost is the most economic, whether it is the cheapest or the highest price. Therefore, it becomes a question of results based on individual experiences as to which may be considered best. Of the four—coke, gas coal, tar, and the ordinary bituminous coal from native fields—coke seems to be the fuel most commonly used. This is probably because of the ease with which the stoker can supply himself with fuel; perhaps on account of poor results obtained from coal, or because it affords a means of securing credits from a by-product. However, in States where the coal fields, and the mines even, are almost at the door of the retort house, we wonder why bituminous coal should not become the common fuel and even the most economic. This brings us to the subject of the paper, "Coal as a Fuel for Firing Gas Benches."

We changed from the use of coke to native coal about 2 years ago, therefore the discussion which follows will be based on methods and results worked out during the past 2 years. The comparative tables, however, are based on the average results obtained during the past year. Since proper handling of the bench fuel is the foundation of economic production of coal gas, we will, first, take up the methods of handling and proper condition of use.

Conditions of Operation.—The benches under fire were the common bench of sixes, semi-regenerative, of the half-depth, Parker-Russell type, retorts (15 inches by 26 inches by 9 feet) front clinkering and fired from slanting door slightly below the level of fire box arch. The grate area is about 18 inches by 42 inches, with the fire box widening at the top to about 26 inches, giving a depth of fuel bed about 36 inches when filled. The arch has the customary nozzle openings leading to the body of the bench, from which the waste gases are led by ducts in backward and forward movement to the upright flues at each side. These meet at the top through cross flues leading to a central stack for each bench, about 20 feet in height. Dampers are set in recuperating flues and not in the stack.

Such a setting with shallow firebox is in a way better adapted to the use of coke, for the shallow fire will allow the rapid production of the fuel gases so greatly desired for combustion in the central chamber of the bench. This same condition is somewhat disadvantageous to the use of coal, since the fire must both coke the coal given to it and carry on the same process as in the coke fire. With coal the fire must be maintained at full depth; *i. e.*, it must be as near to the arch as can be well handled, probably from 8 inches to 10 inches below, and nearly level, the coal being thrown to the back with the shovel, but not pushed back with a hook or stirring bar, as this has a tendency to pack the bed—a condition which must be carefully avoided. They should be filled every 2 hours, when using the ordinary mine run grade. This quite even mixture of large and small lumps, egg and slack, will

keep the fire free and open, not allowing a blanket to form over the bed, which would obstruct the movement of gases formed lower down and close off the draft of the fire.

When egg and slack alone are used they are mixed as evenly as possible and fired every hour and a-half, breaking up the bed about a half-hour after firing. In both cases the fire is thoroughly stirred from the bottom up, at the time of firing, in order to loosen the coal and prevent clinkering as much as possible. In this way all the coal delivered to the house for bench use can be handled without sorting out the lump and passing the screenings on to the boilers. If the proportion of slack in the mine run is too great, a special order of a few tons of lump or screen coal can be mixed with it and all be easily worked. If this method of firing is followed, there will be from 6 to 10 inches of fresh coal spread over the entire bed each time the fire is filled, giving the best condition for gasifying and proper combustion. Such conditions will give even temperature from front to back of the box, even distribution of excess carbon at the time of firing and equal production of fuel gas after the process of gasifying becomes normal.

Clinkering and Breaking Fires.—The clinkers are thoroughly removed from the firebox twice each day at the beginning of each shift, and the fire is broken and stirred from the bottom toward the close of each shift. False bars are not used each time, as they are not necessary. By carefully cleaning the entire bottom of fine ash at beginning of clinkering, only a brittle crust of clinker will remain on the bottom of the fire, which generally holds the main body from falling. By cutting away the clinker formation from the rear and working forward, all dead and clinkered ash may be removed, allowing the fire to drop at the rear first, and front last.

We use a small amount of steam under our grates and keep the clinkers quite brittle. To insure the fire bed being thoroughly clean we thrust the heavy slicing bars to the back of the box along the side and pry upwards throughout the bed, repeating this process about every 6 inches across the grate surface. If they pass freely and leave the fire loose you may be sure the clinkers are quite thoroughly removed. Coal clinkers have been found much easier to handle than the coke clinker. They are seldom waxy and tough, but brittle, breaking more like slag where adhering to the side wall. The two points to be watched most carefully are the rear and front walls of the box. Hoods over the water table and projections from the rear wall are worse than the side clinkers, but easily cleared away if care is taken in stirring and cleaning. For grates we use 1¼-inch, square iron grate bars, set about 2 inches apart. These allow the fine ash to fall to the pan when the bed is stirred at time of firing, leaving a clear fire with no waste of fuel. What we have said in regard to clinkering might be summed up in one statement—neither coal nor coke can give good results unless the firebox is kept clear and its entire space available for burning the fuel placed in it.

Setting of Dampers.—We carry the draft dampers set as close as possible, allowing only enough movement of spent gases to insure sufficient draft for keeping clear, bright fires. When firing, smoke will issue from openings in the sight plugs on account of the back pressure. When in normal condition, slight pulsations of bluish flame can be seen at these openings. This retards the gases in the main chamber of the bench and insures a thorough mixture of the fuel gases with secondary air, and complete combustion, if proper amounts of primary and secondary air are admitted. It also gives a better transfer of heat from the waste gases to the secondary air, as these gases pass through the flues to the stack. Our lower flues show little or no color, which would indicate the greatest possible efficiency from the fuel consumed, by reducing the waste energy to a minimum.

Primary and Secondary Air.—The exact position of the primary and secondary air-draft dampers cannot be given, as each bench must be carefully watched and this point determined by experiment. Changes may be necessary as the settings grow old, but when once the proper point is found, the dampers should be set and secured so no careless stoker can destroy the equilibrium. Under no circumstances should they be changed except by the party under whose direct supervision they have been placed.

Comparing the proportion of primary and secondary air when using coal, with proportions when using coke, we find the conditions almost reversed. Since coke does not disintegrate as rapidly as coal when heated, and is more firm when hot, the primary dampers need not be opened as wide as with a coal fire and still receive the proper amount of primary air to produce carbon monoxide or fuel gas in large quantities. This usually requires the secondary damper to be open from ½ to an equal amount with the primary in order to furnish the secondary air necessary to complete the combustion of the fuel gases produced, as they mix in the central chamber. With coal the proportion is very different, although more primary air is needed than with coke; a much larger amount of secondary air is also necessary. The proportion is nearly two to three, and in some cases being almost two of primary to four of secondary. As a rule only enough primary air is admitted to keep the fires burning brightly so that heat enough may be secured for gasifying the coal in the firebox and completing the combustion of the carbon. Under such conditions, as the oxygen of the air unites with the carbon of the lower part of the fuel bed it produces carbon dioxide (CO_2), but as it passes upward through the heated portion it is changed again to the monoxide of carbon (CO). This gas, in connection with the ordinary hydrocarbon gases of the coal, is depended on to produce the intense heat in the bench proper as it unites with oxygen of the secondary air. Hence the large amount of secondary air necessary to complete the combustiion. With these conditions in the firebox there is less tendency to produce troublesome clinker formation, and more ease in maintaining an intense white heat in the central bench chamber.

The advantage of a deep, level fire can be easily seen. If free, it insures an equal distribution of the primary air, equal production of the mixed fuel gases throughout the fire bed, and delivers nearly equal amounts of these gases to every part of the central chamber, where they may be thoroughly mixed with secondary air to complete their combustion. If the proper proportion of the secondary air is given, and the movement of the burning gases is retarded as much as possible, the loss of energy will be reduced to a minimum.

When coal is first fired we lose some fuel on account of excess carbon particles thrown off due to sudden changes of temperature. This disintegration is so rapid that complete combustion cannot be secured with the amount of secondary air admitted, but within a few minutes, from 10 to 15, normal conditions are again established and nearly complete combustion will take place until the next period of firing. If enough secondary air was admitted to completely burn the excess carbon at time of firing, there would be too great a proportion present during the latter part of the period, when the amount of fuel gas is steadily diminishing. This would lower the temperature of the bench and produce a fluctuation in heat—the very thing we wish to avoid. On the other hand, if we admit only the amount needed in the latter part of the period, the loss of fuel during the first part is very great; therefore, we have endeavored to avoid the extremes by using an amount slightly in excess of that needed in the period of normal combustion. This gives the greatest efficiency of the fuel by consuming the largest part of excess carbon when the coal is first fired, at the same time causing the slightest change in temperature at the latter part of the period, thus keeping the heat of the settings at a constant temperature. Such conditions can be maintained if care is taken, and heats of as great uniformity and intensity secured as with the use of coke.

Results.—As a result of this method of using coal we have had no trouble in keeping steady heats and with an average use of 387 pounds of mine run coal, per ton carbonized; during the 12 months of 1906 we carbonized an average of 375 pounds of Youghiogheny coal per retort. This gave a bench yield of a little better than 66,000 per bench, when time consumed in decarbonizing was included in the averages. Less trouble was experienced with our benches and better work secured from our stokers. No trouble from stoppages on account of soot was experienced, but a fine mineral deposit, probably clay material, at the base of the upright flues and stacks, occasionally caused a stoppage of draft. This substance is carried along by the waste gases and deposited at these points of abrupt change of direction and cooler temperature. It is fine, dustlike in appearance, and does not harden; therefore, is easily removed. Watchfulness on the part of the foreman in charge can prevent this accumulation.

The average amount of coke used to carry the same carbonization as given above would be from 335 pounds to 350 pounds per ton carbonized. The amount of gas coal needed would be about the same, probably averaging about 340 pounds. From this you can see that, in actual pounds per ton carbonized, the native coal is highest, and gas coal almost equal to coke, but in cost there is a great difference.

To obtain these fuel results requires the bench to be operated at full capacity all the time. Where the output causes dropping of charges from lack of holder capacity, the bench fuel will be higher in proportion to the aggregate weight of the charge lost. When such conditions control, the increased amount of bench fuel should not be charged as a fault against either the bench or the fuel, providing proper testing has been done to reduce it to the minimum.

Costs.—On the basis of full capacity, the cost per ton carbonized, with coke for fuel, will range from 42 cents to 43.7 cents, when coke is

charged off at $2.50 per ton. More commonly the coke will net $2.75 to $3 per ton, which will increase the above costs to 46 cents or 52 cents per ton carbonized. With gas coal, when an average of 340 pounds is used, and the average cost of coal is taken at $3.50 per ton, the cost of carbonizing will be about 59.5 cents per ton, making it more expensive than coke at above named charge. Native coal, at an average cost of $1.75 per ton and using an average amount of 380 pounds of bench fuel, will give a cost of 33¼ cents per ton carbonized, making a saving of from 9 cents to 10 cents per ton over coke and about 26¼ cents over gas coal as fuel.

Our own average of 387 pounds bench fuel through the year 1906, at $1.50 per ton, gave a cost of 29.1 cents per ton carbonized. Adding to this cost all extra labor expense for handling during strike period last spring, gives a total expense of 29.48 cents per ton carbonized.

The average for first 10 months of the year was 376 pounds, the difference being caused by carrying 1 old bench with an average of ¼ retort idle for repairs. The best result for the year was made during October, when with lump coal we used 324 pounds bench fuel at an expense of 24.34 cents per ton carbonized. This saved 36.9 cents per ton carbonized, since coke at this time was netting $3.50 per ton.

There are many companies that can secure mine run coal for $1.50 per ton, and even as low as $1.25 per ton, delivered. Here is a saving of from 12½ cents to 18¼ cents per ton carbonized, or about 2 cents per 1,000 cubic feet of gas produced. Where there is a ready market for coke at $4 per ton or higher, the low cost of coal will prohibit the use of coke as an economic bench fuel. Under such conditions coke should be valued between 45 cents and 60 cents per ton carbonized, or about 16.5 cents to 31.5 cents more than the cost of the average amount of native coal necessary, and an unnecessary expenditure of from 1.6 cents to 3.1 cents per 1,000 cubic feet produced. We have found it profitable to use native coal under the benches when coke netted only $2.25 per ton.

TABLE I.

Native coal delivered at..	$1.50	$1.75	$2.00	$2.25	$3.00	per ton.
375 pounds used costs..	28.1	32.8	37.5	42.1	56.2	per ton carbonized
380 " " " ..	28.5	33.2	38.0	42.7	57.0	"
390 " " " ..	29.2	34.1	39.0	43.8	58.5	"
400 " " " ..	30.0	35.0	40.4	45.0	60.0	"
Coke netting.....	$2.50	$2.75	$3.00	$3.25	$3.50	per ton.
350 pounds used costs..	43.7	48.1	52.5	56.8	61 2	per ton carbonized
400 " " " ..	50 0	55.0	60.0	65.0	65.0	"
450 " " " ..	56.2	61.8	67.5	73.1	78.7	"

Gas coal, average cost.....$3.50 per ton.

Average amount used 340 pounds costs.. 59.5 cents per ton carbonized.

Quality of Native Coal.—The quality of native coals may be had from the following table, in which comparison is given between coal, both Eastern and native, coke and tar. The analytic coal results are based on the report of Prof. Parr, of the State Geological Survey. Its greatest value probably would be in showing percentages of ash and moisture present in different coals.

When compared with coal, tar will net but little over 1 cent per gallon, with no allowance made for waste of tar, loss in results from fluctuating heats and increased wear and tear of the bench, cost of installation or trouble of handling. A glance at Table I., showing the comparative costs, where different amounts and varying cost prices are considered, may be of some value in determining which fuel is the most economical, local conditions having been carefully considered.

Generally speaking, our Illinois coal ranks high as a fuel coal, competing sharply with the famous Pocahontas (O.) coal—so much so that native coal supplies the demand for fuel coal of such markets as Chicago and is steadily pushing its way farther west. Why should we not economically utilize this home supply of superior fuel, as the heat producer for our gas benches?

Discussion.

The President—I hope this very interesting paper will bring out a full discussion. I believe Mr. W. F. Clausen prepared a discussion on this paper. Mr. Clausen, you have our careful attention during the discussion.

Mr. W. F. Clausen—I came unprepared, as I did not receive a copy of the paper until last week, at which time I was out of the city and did not have time to devote to it. I read the article, however, very carefully and found it most interesting. Some things in it do not coincide with my views, as to the handling of coal, for instance; but at the same time the paper should command the attention of every gas company in this State or elsewhere, where coal can be bought as cheaply as in the State of Illinois. We certainly can use coal under the benches advantageously, per the figures shown in Mr. Rhoades' paper. We are using at our plant now coal that costs $1.25 a ton, which reduces the cost of carbonizing to the minimum. Mr. Rhoades has attained slightly better results per ton carbonized than we have been getting at our plant, which is probably on account of the difference in the construction of the benches. The fuel Mr. Rhoades used to carbonize a ton of coal is 375 pounds. We have not reached anything short of 400 pounds. The method of firing coal used by Mr. Rhoades was not used at our plant. We do not charge our furnace every 2 hours as Mr. Rhoades does. We charge every 30 minutes, and I do not believe that charging every 2 hours you would get the results, although the figures show that. You know we all fire a boiler every few minutes and that our bench furnaces have a furnace depth of over 36 inches of fire bed; but in firing coal I think the best results are obtained by firing oftener so you get a complete combustion of the coal at the various times of firing. We find short periods of firing are more beneficial than the long periods. We tried heavy charges of furnace fuel at long intervals and found we could not maintain the heat; we had too much of a bed, and the draft would not go up through the bed as it would on a shallow fire. When I was told I was to prepare my-

TABLE II.—*Comparison of Illinois Coal.*

	Air Dry Coal.						Pure Coal.				
Seams.	Moisture.	Ash.	Volatile Matter.	Fixed Carbon.	Pure Coal.	B.T.U. per Pound.	Volatile Matter.	Fixed Carbon.	Sulphur.	B.T.U.	Notes.
No. 1.	8.87	12.46	38 30	40.37	78.67	11,135	48.70	51.29	5.03	14,213	Small output Jackson Co.
No. 2.	8.26	8.82	39.71	43.19	82.90	11,754	47.85	52 15	3.15	14,182	B T.U. 13,285, S. .62, special sample.
No. 5.	8.04	14.05	36.34	41.56	77.90	11,045	46.73	53 27	4.21	14,192	Around LaSalle.
No. 6.	7.94	11 77	37.73	42.54	80.27	11,323	47.63	53.02	4.17	14,109	From Peoria to Springfield, East to Bloomington.
No. 7.	6.88	10.66	37.96	44.99	82.05	11,784	46.05	53.93	2.37	14,146	From Springfield South to Jackson County.
Av. of 10 Ills. Coals.	7.00	8.00	35.60	49.40	85.00	app. 11,409	Danville and vicinity.				
Pocahontas.	.92	3.50	18.70	76.00	95.58	13,000	Carrying 21.6 per cent. combustible hydrocarbons, 14.0 per cent. non-combustible hydrogen-oxygen. 14 per cent. of entire coal and nitrogen or 40 per cent. of volatile matter as non-combustible.				
Pitts burg.	1.37	8.02	36.80	53.81	90.61	app. 13,000	Carrying 14.5 per cent. combustible hydrocarbons, 4.2 per cent. combustible h. o. n., or 4.3 per cent. entire coal and 22 per cent. of volatile matter non-combustible.				
Coke Hot. Cold.	.24 3.00	8.57	4.19	87.00	.....	13,000 to 14,000	Carrying 21.43 per cent. combustible hydrocarbon. 10.49 per cent. non-combustible h. o. n.				
Tar.	.....	.8	35 to 40 pr.ct.	50 to 60 pr.ct.	.....	16,000	Total loss being per cent. of ash and moisture.				
							Carries nearly 10 per cent. moisture and but slight waste.				

self to discuss this paper, I tried to find such matter as I could on the combustion of fuels, but I could not find anything with regard to using coal under gas benches. We have with us to-day experts in the line of building benches who use coal for carbonizing, and I would greatly appreciate a talk from some persons who have been more able to give it attention that I have.

Mr. W. E. Hartman—One point in the paper I would like to see discussed, relates to the wear-and-tear on the benches using coke or coal; that is, the relative life of the settings. In my experience with various kinds of coal settings they do not last as long using coal as fuel as they do using coke. I would like someone to tell me the relative life of a bench using coal as compared with using coke to the economy of coal fuel. Coal put in the fire frequently undoubtedly chills the settings and the contraction of the settings and retorts is detrimental to their life without doubt. It is not entirely a question as to the cost of the coal and coke; our judgment should also be influenced by the wear-and-tear on the benches used in comparison with other fuel.

The President—We would like to hear from Mr. D. R. Russell on this paper.

Mr. D. R. Russell—I don't know that I have much to say about it. The paper is a comprehensive one. It is very hard to my mind to really get a very fair comparison. One man is fixed for firing coal—as a matter of fact he is firing slack. Of course, the different qualities of coal have much to do with it as explained in the paper read. Regarding Mr. Hartman's remark as to the relative life of a bench operated by coal, slack, or coke, I don't know what the difference in the life of a bench would be. As I said before it would be hard to make a comparison owing to the different conditions under which benches are operated at different plants, also the different styles of benches; but certainly a bench will not last as long, with the usual method of construction and operation, under a coal fire as when under coke. This, I think, is largely due to the longer flame and the great and rapid changes in temperature; as, for instance, when you are firing coal or slack, especially slack, the temperature of the bench changes quickly. When you fire coke as a rule your fuel is hot and the changes are not so great. Another thing, with a coal fire, especially slack fire, you open your firing-door more frequently to break up the bed, and that of course lets in cold air. You are also required to clinker more frequently. Not only that, but clinkers as a rule take longer to remove. Again, I think the amount of ash carried over with the gases in the matter of friction (rubbing we will call it) against the tiles and other material will cause more damage than one would imagine. I do not think anyone can tell how much longer a bench steadily fired with coke will last than one fired steadily with coal slack, but I think it would last considerably longer. As to the type of a bench to be built for coal firing. If a company would determine or make up its mind to use only coke or only slack as fuel continuously, better benches could be built for that purpose than are installed to-day, in my opinion. The trouble is the companies want to have the privilege of changing frequently; often they are obliged to change, and the object of the bench builder has been to make a compromise bench so that any of the three fuels—slack, coal of different kinds and coke—may be used as the exigency demands.

The President—We would like to hear from Mr. Bredel on this subject.

Mr. F. Bredel—Gentlemen, so far as the coal is concerned the bench should be designed for coal and not for coke. If steam coal is to be used it should be designed for steam coal and not for gas coal, and the same grate should not be made to burn any fuel which you might see fit to put in it against its design. If a bench is designed for gas coal then gas coal should be used as fuel. If it is designed for steam coal then steam coal should be used. If it is designed for coke then coke should be used. Any coal that contains 10, 12, 14 or 15 per cent. of moisture naturally forms a tremendous amount of water vapor and one would not get the result obtainable with dry fuel; the results would show that the bench originally was designed for coal and the grate was fit for coal and not for coke.

Mr. E. G. Schmidt—We do not care whether a bench is designed for coke, gas coal or steam coal. It is a question of dollars and cents with the management of a company, and if we can make a greater net earning at the end of a year by firing coal we do so. At Springfield we turn out as good gas and as much of it as we need, and our benches last as long. Our benches have lasted, I believe, 25 months. We are sending out the same gas other people are, and our benches were not built to burn coal, but we are burning coal and are making money.

Mr. W. R. Rhoades—As to the question of a comparison in the life of benches, I cannot give an exact statement, but have had 2 sets of benches a little over 4 years. The first set of benches ran a little over 11 months, burning coke, and then we changed over to coal. It was a sort of transitory period of experimental work between coke and coal for the last 5 or 6 months of that year. The next set of benches were fired on coal for 25 months, starting without any coke, and I do not believe there was 28 days' difference in the life of the 2 sets of benches, and I can assure you there was not by 50 per cent. the trouble in handling the benches with coal that there was with coke. So far as the effect of the coal on the settings is concerned, I don't think you will find any difference, at least we did not. You might find some difference in other types of benches, but on the benches I speak of there was not a particle of difference in the effect on the settings, and in the entire set of benches, in comparing the 2 years, we did not find any of the settings melted down. In each case we found the arches had worn so by friction that the cross pieces of the arch at the backbone were eaten out and the arch had to be removed in each case. As to fire boxes. I can assure you our experience was that we had less trouble in tearing out the linings of the fire box by clinkers in the use of coal than in the use of coke. In 1 bench out of the stack of 6 the furnace linings had to be renewed; when we used the coke we had to reline the fire box from the bottom up, and that same fire box under the use of coal has just begun to wear out after 24 month's hard work and will have to be relined again; but it is not anywhere near in as bad a shape as it was when we used coke.

Mr. H. L. Olds—My experience somewhat resembles that of Mr. Rhoades. I don't know I should say how long we used benches that have been burning coal, but we have used them 4 years, and if I were asked to say which bench would last the longest I would reply, a coal fired bench. It has been a wonder to me why gas companies do not use coal in their benches. I think Mr. Rhoades hit the nail on the head when he said that probably on account of the ease with which the stoker can secure his fuel is one reason why they use coke. At the present price of coke in this country it seems to me there are very few gas companies but could use coal to great advantage. A few days ago I looked up a little company that has been successfully using coal in its benches; 6's are run, I think, of the ¼ depth; I don't know the depth of the fire box. Using gas coal in those benches a ton of coal is carbonized with 300 pounds of gas coal. They shake up their fires every change of the shift, but only use slice bars to cut out clinker every 7 days; they are firing, I believe, 150 pounds of coal every 2 hours. They run the bar down and turn the coal over, which causes the coal to coke; in that place they get a very good price for coke, while the gas coal costs them, I imagine, $3 or $4 a ton. They believe they can only use coal for firing the benches.

Mr. R. W. Polk—In the case referred to by Mr. Olds, the price of gas coal was $3.40. Mr. Rhoades made the statement that it is easier to handle a bench using coal, but I hardly agree with him in that. It may be easier to handle the technical part of the bench, but I think there is more manual labor for the stokers. Mr. Clausen mentioned the fact that he charged every 30 minutes in using coal. It is necessarily going to be more labor to charge every 30 minutes, or every 2 hours for that matter, with coal than every 4 hours with coke where running 4-hour charges. So far as the designing of benches to burn every different grade of coal there is on the market, I think it is going a little too far in the theoretical part of it. It is better to have the practical part of it. A bench, Mr. Rhoades says, should be designed to burn either coal or coke, but we try to strike a medium way and get benches that will burn either coal or coke. However, you cannot get as good results from a bench that burns either coal or coke as you can from a bench that is designed to burn either one of them separately.

Mr. E. W. Eustace—In Peoria our experience has been just about the reverse of Mr. Rhoades' experience. We find if we make 9,000 feet per retort we can carbonize a ton of gas coal with 360 pounds of Illinois coal; if we increase the make per retort 10,000—it requires 430 to 460 pounds as required, and to make 11,000 per retort, the quantity is 520 to 540 pounds; 8,000 or 9,000 may be obtained economically, but if it is a question of 10,000 or 11,000 feet, the drafts must be forced.

Mr. W. R. Rhoades—I would like to ask Mr. Eustace if it is true that, in benches of 9's, where you used an increased draft and threw your heat to the back of the bench, there is less efficiency?

Mr. E. W. Eustace—You have to increase the amount of coal in any furnace to obtain an increased amount of work from it.

Mr. W. R. Rhoades—Would the throwing of the heat to the back with an increased draft decrease the efficiency of the coal?

Mr. E. W. Eustace—You get a little more heat at the back, but with gas coal we do not have to burn so many pounds. In other words, we have to burn ¼ more Illinois coal than we would gas coal.

Mr. W. F. Clausen—You do not know, Mr. Olds, what your yield is per bench?

Mr. H. L. Olds—No. I could not tell that.

Mr. W. L. Clausen—Have any others tried firing shorter charges rather than the long ones?

Mr. R. W. Polk—With regard to the time of charging in the furnace, I notice Mr. Clausen gets it down to 30 minutes. In a particular plant where I operated the benches, originally they had been charging about ½ ton of coal every 6 hours. That is, of course, the two extremes. I have operated benches myself for 3 or 4 weeks, day and night, and found that Mr. Rhoades' time of charging and barring up the fire was borne out by my own experience. In that particular case it was not exactly the same type of bench as that of Mr. Rhoades. During that time the yield was 4.85, and the coal ran from 300 to 310 pounds, making 60,000 feet to the bench. Running these same benches with coke—by-the-way, those benches were not designed to burn coke—the make was 66,000 feet on 260 pounds of coke.

Mr. F. Bredel—I want to make one correction. When I said the benches should be designed for the kind of coal used, I did really mean grates. It is only a question of 2 or 3 hours to change the entire grate from coal to coke or from gas coal to steam coal. The best actual result I know of being obtained was with steam coal, and it was 240 pounds per ton of coal carbonized, but that was not the run of mine coal.

Mr. D. R. Russell—I have a question here that is not exactly on this subject, but it is so intimately connected with it that with your permission, I will read it. The question is as follows: "Given two similar gas benches producing each the same quantity in cubic feet of gas per day using the same grade of coal, when the gas from bench A averages 14-candle power, and the gas from bench B averages 16 candle power, which bench is the hottest?" The question means which is the hottest bench in the combustion chamber and also in the retorts. I would like to have some suggestions from men familiar with this subject.

The President—That is a very interesting question and I have no doubt there are those here who have had experience along these lines and who can answer the question. Is there anyone present who is willing to answer it?

Mr. W. R. Rhoades—I would like to ask a question with regard to that. Might not the benches be of the same heat and still have a difference in candle power, the gas burning up?

Mr. D. R Russell—Of course the question assumes that everything was exactly the same in both benches, so far as the quality of coal is concerned, and the fact that no air would be admitted, and that the same size charges would be used. I may be wrong but my opinion is that the heat in the combustion chamber would be the same.

The President—If there are no others who wish to make remarks I will ask Mr. Rhoades to close the discussion.

Mr. W. R. Rhoades—I simply want to say in closing that the discussion has brought out most of the points I intended to have brought out by the paper. However, one that has not been touched on is with regard to the saving of labor, using coal over coke. I believe one gentleman made the statement that using coke would probably save in labor, but we found it just the opposite. The time spent in removing clinkers is greater with coke than with coal, and the time of charging is exactly the same, but the ease with which the bench is handled allows the stoker to do better work with coal than with coke, and if asked which is the cheaper, so far as labor is concerned, I would say coal was. That may be simply because of the way in which we handle the house, but our experience has been that.

On motion of Mr. Z. T. F. Runner the thanks of the Association were tendered to Mr. Rhoades for his valuable and interesting paper.

The Secretary—A complimentary dinner has been tendered the delegates, to be given at the Creve Coeur Club, at 7 P.M. We would like to have all the delegates attend. Our invitation includes the supply men present as well as the delegates.

A recess, to 2:30 P.M., was ordered.

First Day—Afternoon Session.

The Convention was called to order at 2:30 P.M.

The President—Before proceeding to the regular order of business I wish to state that Mr. Fischer, General Manager of the Illinois Traction Company, has extended a cordial invitation to the delegates to visit the new power plant of his Company. Mr. Nelson, the local Manager of the Company, will have a car at the Hotel at 5 o'clock this afternoon to take as many as desire to go. I also wish to announce that the Peoria Convention Bureau has extended an invitation to the delegates to visit the Clarke Distillery, and that Mr. Nelson, the local Manager of the Street Railway Company, will have a car at the Hotel at 2 o'clock to-morrow afternoon to take as many of the delegates as desire to go. Before we proceed with the regular order I think Mr. Rice has something to present.

Affiliation.

Mr. H. L. Rice—I wish to give notice that, at the next annual meeting of this Association, I will offer an amendment to the by-laws admitting supply men as Associate Members of this Association, without voting power, on the payment of $5 annual dues. I offer the following resolution:

Resolved, That the Executive Committee be and hereby is authorized to take all necessary steps to affiliate this Association with the American Gas Institute under the provisions laid down for affiliation by said Institute.

Mr. E. E. Morrell—I move that the resolution be referred to the Executive Committee with power to act. [Seconded and adopted.]

Mr. Arthur D. Mackie, Commercial Manager of the Peoria and Springfield (Ills.) Gas and Electric Companies, here read the following paper on

NEW BUSINESS METHODS.

It was only a few years ago that the gas manager devoted the greater portion of his time and energy to the manufacturing end of the gas business. Matters pertaining to the installation of apparatus for the taking away of the "spirit of the coal," and the different processes to which it is subjected before it reaches the distribution arteries, were to him of paramount importance. But he is now awakening to the fact that it is not so much to the man who makes the goods as to the man who sells them, he must look for the doughnuts; not the manufacturing engineer but the commercial engineer is the man behind the gun, and the man to whom he must look for the dividends. And in saying this I speak advisedly and with hearty appreciation of the man at the retorts, for without him to produce a good, first-class article, there would be very little use for the commercial man. Indeed, I will give the manufacturing engineer credit for being a very close second, and almost as important an adjunct to the gas world as the commercial engineer.

Now comes the task of securing men adapted to this particular line of work, and when once secured how to train them to get the best results. Probably more time and more attention have been given to this particular end of the business in the past few years than to any other. Gas managers are beginning to recognize that the commercial possibilities of the company depend largely on the sales department, and the success of this most important department depends upon the grade of men who are employed in it, and in order to get the men who can deliver the goods, the remuneration must be made attractive. Then the question arises, on what basis shall this remuneration be made—on the increase in the number of new consumers secured to the company, on the number of appliances sold, or on the increase in gas sales?

We are now paying our solicitors in Peoria a straight salary and our solicitors in Springfield a straight commission, based on appliances sold. I am at present working on a plan of combination salary and commission, the commission based on the increase in meter sales, in addition to a stipulated salary (additional business secured on present installation being more remunerative to solicitor than business requiring the installation of services, meter connections, etc.). I believe some uniform scale can be worked out along these lines that will be more satisfactory to both the men and to the company than either straight salary or straight commission; the salary acting as a backstop, so that the solicitor is sure of something coming, and the commission as an incentive to increased activity. It is an unfortunate fact that the average solicitor, working on a salary, fixes an amount of business secured limit and feels he has done a good month's work if he reaches that mark. What can be done to awaken the conscience of the solicitor and bring him to a proper realization of the possibilities beneath his eyes every minute? Right here I wish to read to you one of Waldo Pondray Warren's "Thoughts on Business."

Breaking the New Man In.—When a new man begins work in an office or a department, he is often left to shift for himself without an outline of his duties or an introduction to those around him. It is refreshing to hear what a young man told me recently:

"When I began here," he said, "the manager of this department talked things over with me for nearly an hour. He told me the names of all the officers of the firm and what they did, the names of all the heads of the departments I would come in contact with, the names of the other people here in the office, the names of the leading houses we did business with, and gave me a good general idea of the work of the

whole office, and a special outline of my duties and possibilities here. Then he took me around and introduced me to most of those people The result was that I quickly got my bearings, felt at home from the first, and soon settled down to hard work. In my previous position with another firm my experience was very different. There were no introductions, and no outline, and no general information. My first 3 months were practically spent learning what the Manager could have told me in an hour if he had known enough to do it. The work here is twice as complicated as it was there, but I got the general plan of it well in mind the first day."

Every manager should for the moment put himself in the place of the new employee and realize what a confused sense he must have of a large and unfamiliar business, and how easily that confusion could be taken away by telling him the way things go, and what it is all about. What men need is "standpoint," and there is nothing like a good talk for giving them that.

With your indulgence, I will read another of Mr. Warren's "Business Jewels" which bears on the relations between employer and employee.

Show Your Appreciation.—"Men need a word of encouragement now and then just as much as they need food. For as food is to the body so is encouragement to the mind and heart. A worker who is discouraged is not half a man. And even the most liberal compensation cannot take the place of a word of appreciation and encouragement given in the right spirit at the right time.

"'That is a good job, Henry,' said a business man to his clerk, who had just finished ruling a book for him. And the young man threw himself into his work with renewed energy and interest. The man never knew how much that slight word of approval meant to the clerk, nor how much it added to his enthusiasm.

"Men and women crave the assurance that their work is meeting with satisfaction. To withhold that assurance when it is due is not merely poor business policy, but is also an injustice. Part of the compensation of every worker is the satisfaction of knowing that he is accomplishing something and to withhold that satisfaction is often more grievous than to hold back money duly earned.

"More and more must those in authority in business recognize the human element in men and women—the part the heart plays in the work. It is possible, of course, to say too much to a man, giving him an over-elated sense of his value—but the tendency seems rather in the other direction; men do not get encouragement enough."

We have recently organized in the Peoria Company a commercial club, which we hope, and have every reason to believe, will have a very great influence on the development of the salesmen and solicitors. These Club meetings are held each morning, at which times are taken up the various matters of general importance happening the day previous. In this way each man on "the firing line" keeps in touch with the happenings in the office and the sales department, and the sales department keeps in touch with "the field."

We have a stenographer present recording all that is said. This feature we find very useful as a matter of reference at subsequent meetings. The average solicitor (and I believe our solicitors will average with any) is very liable to report a few mythical orders, etc.—I sold to Mrs. So-and-So a gas stove to-day, but she was not ready to give me the order just yet. The stenographer records the prospect and at the expiration of 10 days or so, if Mrs. So-and-So's order is not received, Mr. Solicitor is asked about it.

In this way we are decreasing the "phony" prospects and filling our records day by day with good dividend-earning prospects. These meetings also have the effect of creating among the men a greater interest in their work. It instigates a friendly rivalry, each man striving to outdo the other fellow, and it creates enthusiasm. And enthusiasm! what a great factor it is in salesmanship. Let a salesman approach a prospective customer bubbling over with enthusiasm, backed up, of course, with a thorough knowledge of the uses and abuses of the article he is offering for sale, 9 times out of 10 he will carry conviction with his every word, with the inevitable result, a sale effected.

What is salesmanship? Salesmanship has been defined as "The power to persuade people to purchase at a profit that which you have to sell." One of the fundamental principles of successful salesmanship is backbone. Someone once, and wisely, said: "Three things are necessary for success in any undertaking; first, backbone; second, backbone; third, backbone." A salesman, to be successful, must be a fairly good judge of human nature, in order to know the psychological moment to clinch the sale. He must have a thorough knowledge of the article he is offering for sale, all the points connected with it and surrounding it, and then be able to state these points to the consumer in such a manner as to impress his mind. A salesman cannot know too much about his own proposition. In the gas business, for instance, he should be given a general outline of how gas is made (it is unreasonable to expect that he should learn it technically), but he should make a thorough study of every use to which gas can be put. He should study the various gas burning appliances, their construction and operation; he should be able to set a meter, to read and explain the readings of a meter, to connect a gas stove, to systematically lay out a job of house piping; he should be very familiar with the adjustment and regulation of gas burning appliances for either light or fuel. Oftimes the ability and readiness to adjust a burner on a gas stove, or to regulate an incandescent light, will give a solicitor an "entering wedge" in a house to show his wares. It will at least give him a more favorable hearing than through the crack in a door, and the salesman who once gets the ear of the customer, if he is a salesman, gets the order sooner or later. Further, a salesman must be able to adapt himself to his customer; *i. e.*, talk to him on the same plane or level, never talk down to him, nor up to him, talk to him. (In other words, be a politician and kiss the baby, if necessary.) Another thing to remember is that successful salesmanship does not consist in selling the public what it wants, but rather in selling it what it never thought of having, but should have.

Your worthy Secretary asked me for a 15 minute paper or talk on "New Business Methods." I assume in limiting me to this short time on such an important subject, was with the idea of giving more time to the discussion to follow. This is, I believe, a step in the right direction. It has been my observation, at many conventions I have attended, the papers read have been too long and the discussions correspondingly too short. In other words the personal views of one man on any one subject are not nearly so valuable as the combined views of 6 men, and the views of 6 men are not so valuable as the condensed views of 50 men. It is to be hoped, therefore, the discussions will be taken part in by every man present, not only in this paper, but on every paper presented before this convention.

Fifteen minutes would scarcely be time to more than enumerate the various points to be discussed pertaining to this most important part of the gas industry. I will, therefore, just touch the "high spots" and leave the "filling in" for the discussion.

Industrial Gas.—We have in Peoria, thanks to a City Council composed of broadminded men working in harmony with the business men of the city, a 90-cent net gas rate. It may fairly be said, gas at this rate is cheaper than any other commodity for either light or fuel, for cooking or industrial purposes. We also have a rebate system for large consumers, based on the total annual consumption. All gas is billed at the regular rate and at the end of the year any consumer having used 500,000 cubic feet of gas under one roof is entitled to a rebate of 10 cents per 1,000 cubic feet for gas so billed and paid for, and on an annual consumption of 1,000,000 or over is entitled to a rebate of 15 cents per 1,000 cubic feet, making a net rate of 75 cents per 1,000 to a 1,000,000 foot consumer. My predecessor, Mr. Robb, had the industrial gas situation well in hand as is evidenced by the number of half-million and over consumers on our books, and we are adding to them right along. This is the cream of the business, as it costs very little more to supply gas to a "1,000,000 foot" consumer than to a "10,000 foot" consumer.

Increasing the Load on Present Equipment.—We continually impress upon our solicitors the desirability of this business which increases the demand without increasing the investment.

Dead Services.—We keep an up-to-date list of all dead services and keep everlastingly at it, in an endeavor to get a live consumer at the dead end of every service.

Prospective Business Record.—We have a card record of every building located along the line of our gas mains, specifying what is used for light or fuel in each building, also sundry other appliances in use. This record is used, not only as a guide for the solicitors on "possible business prospects," but also in connection with the mailing of literature so as to place circulars, mailing cards, etc., only where there is a prospect for the particular appliance we are then advertising.

Gas Stoves.—Our system of selling gas stoves is about the same as that generally followed by gas companies; *i. e.*, free connections and monthly payments. We sell our stoves and other fuel appliances at a reasonable profit, and make the monthly payment attractive. Personally, I am not in favor of selling fuel appliances, particularly stoves, at or below cost, and do not believe it will materially increase the sales. Furthermore, free installation is bound to load up your books with undesirable and unprofitable business. I am firmly convinced that an appliance bought and paid for by the customer is appre-

ciated, and the apppeciation shown in daily use far more than had it been installed free.

Illuminating House Piping.—In Peoria, for the 5 months ending December 31, 1906, we piped and installed lighting fixtures in 364 houses (1,809 openings) on a proposition of 5 rooms equipped complete for $13.25. Our average loss on this proposition was $2.60 per house equipped, but here is an installation which cannot be taken out and will be doing business for the Company right along, regardless of the change of tenant. Ninety per cent. of these houses were previously lighted with kerosene, and would probably have remained in the grasp of the mighty "Standard" had we not come to the rescue with an especially attractive proposition.

Gas Arc Lamps.—Where the gas and electric companies are under one management, the gas man's hands are tied to a certain extent, as the electric company is usually given the preference in store and interior illumination, window lighting and outside arcs.

The gasoline plants have obtained a pretty strong foothold in Peoria (there being three concerns here engaged in the manufacture of these "infernal machines"). Last fall we tried many schemes to stamp out this affliction. I rounded up our solicitors day after day and for 2 months had 2 men practically devoting their entire time to the gasoline situation. We occasionally broke through their ranks and succeeded in displacing a gasoline plant with gas arcs on the $1 a month—12-month plan. In connection with this we arranged with the newspapers to write up every gasoline explosion that happened in or near Peoria, then in the following issue of the paper we would feature the story in a good-sized display space. We talked danger, fire risk and insurance; begged, prayed and implored users of these plants to stop and realize the danger to their life and property they were courting day after day, but not until we adopted a free installation proposition did we make any perceptible inroad.

On December 1 last we let down the bars and advertised that for 30 days we would would install gas arc lamps free of charge. We reduced the maintenance charge from 50 cents to 25 cents per arc per month, and succeeded in 30 days in placing 350 arcs and in displacing 37 gasoline plants, mostly in saloons, long-hour lighting. In several cases we made an even trade, gas lamps for gasoline lamps, and hauled the "death dealing devices" to our shop and marred them sufficiently to destroy their future usefulness. It is true that during this rush we secured quite a number of consumers away from the electric company, and also installed some arcs where incandescent and other gas burners had previously been used, but the case was desperate and required a desperate remedy. At the expiration of the 30 days we discontinued the free installation, but we had placed so many lamps and they made such a good showing wherever placed, we have had no trouble in putting out a good number since that time on lease, and we are still rounding up gasoline plants.

Advertising.—The advertising instinct is born within us all. The infant's first hunger cry is the expression of the instinct born within it to advertise the fact that it is hungry, and the effect aimed at is to attract, to hold the notice long enough to convince, and you will observe that the infant "keeps everlastingly at it" until it has accomplished the desired result. This is the fundamental principle of advertising—to attract, to hold the notice, to convince. If the infant's theory is followed—"everlastingly at it"—it is bound to win.

It is to be assumed every gas manager concedes that advertising is not only a good investment, but also a very necessary adjunct to the successful financial operation of the business; but how are we to determine what line of advertising is profitable and what unprofitable? Our most successful experience has been: Following a systematic campaign of newspaper advertising, circulars, pamphlets and personal follow-up letters, followed by energetic personal solicitation. Let the newspapers and other printers' ink publicity "blaze the trail" for the representative who follows.

Solicitors should be kept posted on all current advertising. In our salesroom in Peoria we have a poster board on which is posted each new "ad." as it appears, and each solicitor is required to sign his initials and date on the memo. attached. In this way, when Mr. Jones asks: "Are chickens hatched by gas, in this gas heated incubator you are advertising, better broilers than hen-hatched chickens?" he will be able to answer "yes," and intelligently explain why.

Experience has shown that the great public is fickle—that it is always clamoring for some new sensation and it does not make much difference what it is. It, therefore, behooves us to keep this eager public posted up-to-date. We have the "goods" to sell and the people want our "goods." Just how soon the trade will be consummated—our goods for their coin—depends upon the publicity given, depends upon the regularity and efficiency of that publicity. As an illustration, a workman with a hammer and chisel is busily engaged pounding away at a huge boulder. Blow after blow he strikes without apparent results until at last the huge boulder falls in parts. Now which blow broke that boulder? Was it the first blow or the last blow, or one of the blows in between? No one blow broke that boulder. It took all the blows—the first blow, the last blow and all the blows in between to break that boulder. And so it is in advertising. It takes all the blows, steady pounding, one blow right on top of another; the great public is the boulder; one blow or flash of advertising will not catch them; it merely makes a dent, and if not immediately followed up by another blow, the effect is lost and the start must be made all over again.

Persistent and steady pounding with newspaper advertising, letters, mailing cards, monthly dodgers attached to gas bills, etc., and it will be but a matter of time until you will have the satisfaction of seeing the great boulder "the public," give way to your pounding, and you have the dollars coming your way—for the moment—but don't make the fatal mistake to stop there. You have just begun; you have just made the dent.

The graveyards are full of men who made a big "splurge" in advertising, succeeded in once getting goods on the market and then, alas, conceived the notion to discontinue advertising, and sat back and waited to see the ship go sailing by on a smooth, level sea, as a result of previous publicity. This is just where the ungrateful and fickle public proceeds to forget. The average human being has his own troubles to claim his attention without thinking of the other fellow's, so, unless the advertiser forces him to think by keeping before his eyes his advertisements and thereby reach his understanding from the outside, the advertiser is in great danger of being forgotten. But if the man with goods to sell keeps the name and nature of these goods constantly in the public eye, why the public is bound to see and remember whether it wants to or not; then to keep the public eye interested, something new, fresh and catchy must be added regularly. Just remember, that to a woman an ad. without a catchy heading is like a bald-headed man—hard to grasp. Another point, it is not always the largest story that is the most interesting. Terseness and catchy phrases are the most powerful ads., just enough text matter to catch the eye and stick to the memory of the reader. Then never let up, make noise enough and often enough to keep the public awake, and while awake, feed them on interesting advertising matter—"blaze the trail" with newspaper and other printed literature, so that when the alert young man with the order book and the sharp pencil calls he has but to confirm the publicity already given to "cinch" the sale and carry back the order in his egg basket.

(To be Continued.)

The Lighting of an Office Building.

[Prepared for the Illuminating Engineering Society by MR. CHARLES M. COHN.]

The Chairman of the New York Section has requested a description of the lighting of the office building recently erected by the Consolidated Gas Company, of Baltimore city, and although there are no features that are especially novel, these few notes have been prepared in compliance with his request.

Among the buildings erected in Baltimore, shortly after the great fire of 1904, was the office of this Company, whose former office building was destroyed on the first day of the fire. The site selected is a short distance beyond the limits of the burnt district, and is in the heart of the principal retail section of the city.

In the rebuilding of the burnt district, now almost completed, the Company took advantage of the opportunity for the improvement of the system of house piping, and was successful in having generally adopted by builders and architects the specifications formulated and recommended by the American Gas Light Association. The arrangement of the house-piping in the new building of the Company was done in accordance with these specifications, which merely embody the ideas we advocate.

In the lighting of the offices of the Company, the economy of the arrangement was carefully considered, but the matter of economy was subordinated to the broader questions of good illumination and ornamental lighting. The efficiency of the mantle burners made the matter of light absorption by suitable shades a thing of little importance. The mantle burners were used exclusively throughout the building, and the cylindrical shape of the mantles themselves aided greatly in the decorative features of the lighting.

The first floor, which is used by the public and by the office force

coming directly in contact with the public, handling orders passing to and from the distribution department, is satisfactorily lighted by side brackets attached to the 6 pilasters at the sides and the 3 columns in the middle and side of the room, as is partly shown in Fig. 1. On each

Fig. 1.—Public Office, Consolidated Gas Company, Baltimore.

of the pilasters a five-arm bracket is placed, and on each of the 2 columns in the middle of the room 4 three-arm brackets, and on the column on the side of the room 2 three-arm brackets are used. The approximate number of square feet in this room is 1,900, the height of the ceiling is15 feet 3 inches, and the lights are about 9 feet above the floor. The brackets are of Flemish design, finished in brush brass, and are equipped with Enos socket burners, arranged for electric glassware. The generally recognized objections to the extended use of mantle burners—the unpleasant whiteness and glare—were overcome by the use of amber-tinted shades, sand-blasted inside. It was to remove these disagreeable features that considerable effort was made to find shades that had a soft amber, yellow or pink tint, and in trying to procure shades of this character we communicated with a number of glass manufacturers and burner manufacturers, and were told that, nothing could be had at a reasonable price excepting the gaudy etched shades that are found so often in connection with cheap fixtures. It is a remarkable fact that so little progress has been made in suitable glassware for incandescent gas burners. We were, however, finally able to persuade a well-known glass concern to make up for us some special samples carrying out our ideas, and from these samples we found an amber-tinted shade so satisfactory that we at once secured a large number of them for our own use as well as for the use of our gas consumers. While we find this shade absorbs from 30 to 35 per cent. of the light, it is very desirable and popular.

In the private offices on the upper floors of the building 4 and 6-arm brush-brass chandeliers of simple designs are used, amber-tinted shades being also used on these fixtures, some of which are equipped with Enos socket burners and others are the combination arrangement of fixture and burner known as the Enos Bunsen fixture. The illustrations of the fixtures in the general manager's office, shown in Fig. 2,

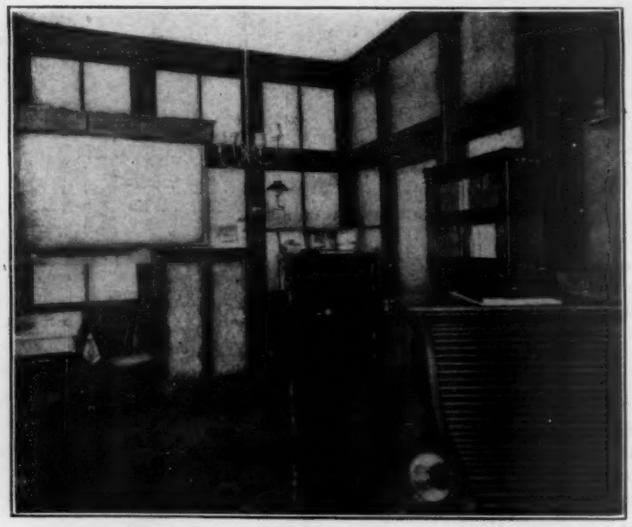


Fig. 2.—General Manager's Office, Consolidated Gas Company, Baltimore.

and the fixtures in the directors' room, shown in Fig. 3, give a pretty

Fig. 3.—Directors' Office, Consolidated Gas Company, Baltimore.

fair idea of the lighting arrangement of these offices. In addition to these chandeliers, swing-brackets with Welsbach burners, fitted with holophane bobesches, with 10-inch opaline dome shades, are generally used for desk lighting, placed about 4 feet above the desk, and have been found very satisfactory in providing a soft and easy light for office work. The bobesche shields the mantle entirely, and the white lining of the dome shades aids materially in the diffusion and distribution of the light.

The bookkeeping department, shown in Fig. 4, and the drafting room

Fig. 4.—Bookkeeping Department, Consolidated Gas Company, Baltimore.

of the engineering department, both being of nearly the same area as the first floor, are lighted with a number of single mantle burners, connected with ceiling outlets, the burners having a white enameled metal chimney 3 inches in diameter and 12½ inches in height over a short, clear glass chimney. They are a modification of the burner recently put on the market under the name of the "Lucas light." These lamps are finished in brass and white enamel, which form a pleasing combination, and have been found to be highly efficient, giving from 30 to 35 candles per cubic foot per hour of gas burned, and give a good distribution of light. They are of 200-candle power each and have been found commercially very satisfactory where an efficient light is desired for lighting large spaces.

Another attractive combination used in the offices and in the toilet rooms is a 2-arm pendant holding a Welsbach burner with a holophane globe fitted closely around and almost entirely covering the brass shade holder of the burner. An improvement in the shape of the globe so as to conceal as far as possible the brass shade holder was first

suggested a few years ago by this Company in its desire to improve the crude appearance of incandescent gas burners, especially when contrasted with the neater and more attractive appearance of electric burners. This combination is, of course, well known, and calls for no further comment.

In the planning and laying out of the piping of the building an abundance of outlets was allowed, and upon the completion of the building such of these outlets were used as were deemed necessary for good illumination. Practical experience was largely followed, with the result of an abundance of light throughout the building and a pleasing and attractive effect from the arrangement of the lighting and fixtures.

No attempt has yet been made to measure the amount of illumination at any one point, although a study of the conditions, showing the exact volumes of illumination on the desks, floors, and various parts of the room, is purposed on the first convenient opportunity.

Garden Lights.

By "ENGINEER."

It is getting to be quite the thing to have garden lights. While lawn and porch lights have been in use for many years, the strictly garden light was not introduced in a systematical way until recently. The gardeners, and lovers of lighted flower gardens of the United States, have not taken the lead in this matter, for foreign gardeners and housewives have introduced the plan on a more extensive scale, resulting in some very brilliantly lighted floral exhibitions. The project involves the installation of a line of gas mains or of electrical wiring from the source of the light to various points distributed about the garden. The plan is different from that employed in hot houses or among hot beds, where the lights are arranged to give an imitation of sunlight for the purpose of encouraging the plants to bloom and grow every hour of the 24. The lights for the garden lighting purpose are arranged so as to freely light, not only the growing flowers but the paths, the arches on which vines may be growing, the racks, the trellisses, etc. Several forms of light are utilized for this purpose, such as common house gas, electrical and carbide. Oil lights are not strong enough, unless the oil is burned in the form of a vapor under pressure in certain apparatus constructed for the purpose. The attached illustrations show some of the plans of arrangement of the light stands.

In tropical countries, where the nights are warm and pleasant the year around, it is quite the custom for parties to congregate in the gardens after sundown. Much sleeping and resting are done in the heat of the day, with the result that everyone comes into being at night, and night card parties, entertainments, dances, etc., are the rule. Hence we may see a gas main tapped and a stand erected out-doors in the open field of the garden, as in Fig. 1. The globes are made especially strong for this purpose. The standpipes are of heavy material and made to support the light even when a heavy wind is blowing. The gas main is run from the street lines or taken from the house main. There is not very much trouble experienced in setting up the light. Nearly all of the piping in the tropical lands runs along upon the ground and is but slightly protected with frames of cement or wood. People walk on the pipes and no one seems to care. The custom is due to the fact that it is not necessary to trench water pipes, to prevent freezing. Therefore, practically all pipes are laid on the surface of the earth, or very near to it, because this is more convenient than digging the proper trench. Some of the light stands set up for the gardens are exceedingly attractive. Some are erected on brass or other metal stands, with chandeliers of exquisite beauty. Considerable work is involved in keeping the glass fixtures in order.

The native families of tropical countries always have several black servants hanging about the home, and these servants do the work necessary to keep the garden lights in order. A system of reflecting lights is also employed. Fig. 2 shows one of the burners (*B*), with the sheet metal reflector arranged so that the light may be shot forth over the floral exhibition. As a rule, however, the light is adjusted in the open in the mass of flowers or plants, and the light is thereby shed evenly over the complete display. Again, there are the reflectors which are used on special occasions in the manner exhibited in Fig. 3, so that the light may be cast downward. The pipe stand is designated *C*, and this pipe is joined to the main. Proper checking valves are on the pipes, so that the flow of the gas may be controlled. Fig. 4 exhibits one of the rounded forms of sheet metal reflectors. The pipe carrying the gas to the burner is designated *D*, and goes down down to the joint of a "T" in the main where the connection is effected.

Electric lights are also used for this purpose; but as it often happens there is no source of electrical supply in the community, carbide gas machines are sometimes installed, unless there is a common house gas plant in the locality,

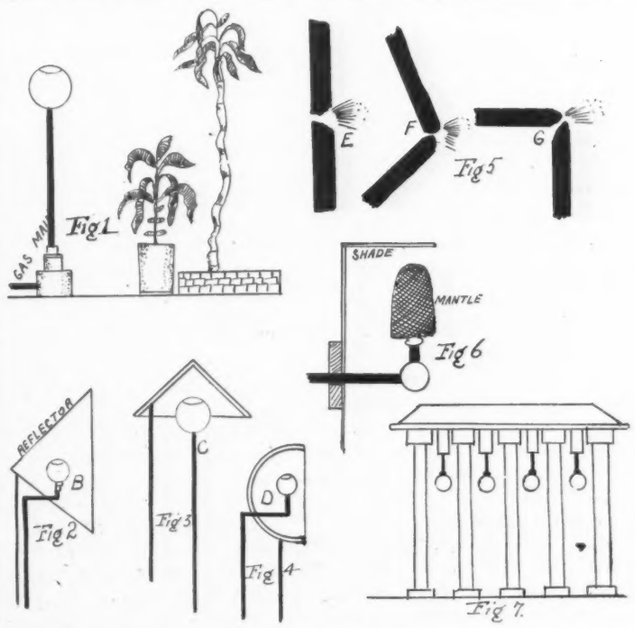
Electric lights are used both in the form of arc and incandescent. The incandescents are, of course, much easier used, but more globes are needed to light up. It is better to have one powerful arc light.

I noticed in some of the lighted gardens there were not only corner incandescent lights, but also quite a liberal sprinkling of the lights in the center to afford much illumination, whereas one arc light, fitted on a pole over the center of the garden, would have lighted the whole area. You have to look up the current when you put in your electric lights, and if it is direct use the carbons, as in Fig. 5, *E* or *F*. If the current is alternating use the carbons as at *G* with the angle defined as shown.

As above suggested some gardens are lighted by gasoline or other form of oil devices in which pressure and vaporization form an important factor. Fig. 6 shows the arrangement of the mantle as used for garden service. The oil is retained in a tank placed underground near the garden, sufficient oil being drawn up to the vaporizing device. The oil is under pressure all the time through air being pumped in, hence the oil comes forth in strong force. The vaporization occurs at the point just before ignition, due to the heat of an alcohol light just under the oil passages. This turns the oil into vapor, and just enough air mixes with the vapor to make a combination which burns readily, with intensity and whiteness, on the mantle. Several of these lights will make a garden very bright on a dark night.

The carbide lights are used for this service as well. The generator is usually placed nearby in a protected spot and the gas is made and distributed to burners arranged about the place.

In stormy weather the lights are not used, but in some places the people light up garden alcoves and roofed places on the order shown in Fig. 7. This consists of putting a number of hanging lights below the



roof, where concerts may be held and the light shed forth in the garden on the flowers, resulting in quite a dreamlike scene.

Recent Patent Issues.

[Prepared by MR. ROYAL E. BURNHAM, Solicitor of Patents and Counsellor in Patent Cases, 833 Bond Building, Washington, D. C., who will furnish illustrations and specifications of any patent mentioned below on receipt of 10 cents.]

844,644. Mantle impregnating machine. E. D. Anderson, New York city.
844,694. Process of drying gas. G. G. Smith, Florence, Italy.
844,828. Gas controlling means. F. H. Oehlke, Lorain, O.
844,849. Process for producing mantles for incandescent gas lighting. J. A. E. H. Boullier, Paris, France.
844,957. Incandescent mantle support. M. Offenberg, Pittsburgh, Pa.

845,104. Gas mixing apparatus. W. J. Lonegan, St. Louis, Mo.
845,128. Apparatus for producing a mixture of steam and combustion gases. E. Schmidt, St. Petersburg, Russia.
845,166. Incandescent gas lamp. R. M. Dixon, East Orange, N. J.
845,184. Method of forming an incandescent gas mantle. C. M. Lungren, Bayonne, N. J.
845,185. Art of mounting a mantle. C. M. Lungren, Bayonne, N. J.
845,186. Gas lamp. C. M. Lungren, Bayonne, N. J.
845,297. Heating attachment for gas burners. P. J. Foley, Jersey City, N. J.
845,315. Combination adjustable gas or gasoline saver and heat controller. W. F. Nichol and D. E. Lacey, St. Louis, Mo.
845,332. Gas burner. H. S. Busey, Chambersburg, Pa.
845,518. Controlling mechanism for gas ranges. F. Cais, Cleveland, O.
845,560. Acetylene gas generator. T. Lenzi, Jersey City, N. J.
845,749. Combined gas seal and regulator. C. W. Bradley, Chicago, Ills.
845,834. Machine for charging and drawing gas retorts. J. West, West Didsbury, England.
845,962. Lamp globe. G. A. Macbeth and H. A. Schnelback, Pittsburgh, Pa.
845,963. Lamp. C. C. Malton, Worcester, Mass.
845,970. Combined cock and support for cluster lamp burners. J. W. McKnight. Hanover, Pa.
846,018. Controlling device for gas generators. F. Durr, Karlsruhe, Germany.
846,035. Recovery of ammonia from gas. H. Koppers, Essen-on-the-Ruhr, Germany.
846,078. Safety gas trap. F. J. Wood, Brooklyn, N. Y.
846,295. Gas generator. C. D. Finley, Memphis. Tenn.
846,355. Apparatus for charging gas retorts. W. Slingsby, Ovenden, near Halifax, England.
846,357. Producer gas apparatus. H. F. Smith, Lexington, O.
846,358. Process of handling ash in gas producers. H. F. Smith, Lexington, O.
846,395. Gas manufacturing apparatus. J. J. Busenbenz, Chicago, Ills.
846,489. Apparatus for the manufacture of gas. F. Logan, Phœnixville, Pa.
846,680. Gas machine. M. B. Mason and E. M. Sinclair, Sioux City, Ia.
846,815. Apparatus for removing impurities from furnace gases. R. Baggaley, Pittsburgh, Pa.
846,916. Combined hot blast, water coil and gas burner. J. B. Ehrlich, Indianapolis, Ind.
846,930. Gas burner. A. J. Meyers, Kansas City, Mo.
846,947. Automatic gas regulator and cut-off. A. D. Purtle and I. E. Rowland, Salem, W. Va.
847,054. Producer gas plant. P. Eyermann, Beloit, Wis.
847,210. Gas burner. E. S. Springer and J. L. Maloney, Leavenworth, Kas.
847,362. Apparatus for manufacture of gas. J. T. Paris, Chicago, Ills.
847,412. Gas burner. P. Keller, Chicago, Ills.
847,413. Gas pressure regulator. P. Keller, Chicago, Ills.
847,704. Gas cooking stove. W. D. Sheppard, Exeter, England.
847,727. Method of charging gas tanks. R. E. Bruckner, Mount Vernon, N. Y.
847,783. Process of generating gas. G. Cothran, Chicago, Ills.
847,818. Gas regulator. G. Porst, Baltimore, Md.
847,995. Gas demonstration apparatus. J. E. Carroll, Philadelphia, Pa.
848,070. Convertible gas and oil lamp. M. Thorud, Chicago, Ills.
848,074. Acetylene generating lamp. E. Wachter, Buchs, Switzerland,
848,118. Gas producer. W. R. Miller, Pittsburgh, Pa.
848,331. Acetylene gas machine. R. H. Walter, Los Angeles, Cal.
848,367. Gas burner. H. H. Hipwell, Allegheny, Pa.
848,444. Gas burner. W. W. Cozins, Hadley, Pa.
848,622. Gas generator. F. Bauke, Berlin, Germany.
848,639. Support for gas generators. W. P. Crary, New York city.
848,729. Process of producing gas. H. L. Doherty, Madison, Wis.
848,963. Gas manufacturing apparatus. J. J. Busenbenz, Chicago, Ills.
848,694. Gasometer. J. J. Busenbenz, Chicago, Ills.
849,002. Closure for gas tanks. E. F. Lloyd, Detroit, Mich.
849,053. Device for automatically regulating the quality of gas. G. F. Conner, Port Huron, Mich.
849,071. Gas cooling and mixing tower. J. T. Hutson, Atlanta, Ga.
849,116. Gas lighting apparatus. E. A. and E. N. Frary, Deerfield, Mass.
849,121. Safety gas cock. C. L. Gefrorer, Philadelphia, Pa.
849,162. Gas generator. R. Reid, South Yarra, Victoria.
849,247. Gas generator. M. J. Lackner, Dortmund, Germany.

ITEMS OF INTEREST FROM VARIOUS LOCALITIES.

Mr. George Howard, Treasurer of the National Savings and Trust Company, Washington, D. C., has been elected President of the Georgetown (D. C.) Gas Light Company. He is well known and well liked.

Gen. Eugene Griffin, First Vice-President and Manager of the sales' division of the General Electric Company, died in Schenectady, N. Y., the morning of April 6th. He was in his 52d year, having been born in Ellsworth, Me., October 13, 1855. He was a graduate of West Point (Class of 1875), and commanded the First Regiment, United States Volunteer Engineers in the Spanish-American War. He had been prominently identified with the General Electric Company since the formation of that concern.

Miss Anna Endres was the victor in the novel contest for the gas range offered under certain conditions in the balloting going on in Peoria, Ills., for the lucky one that will eventually be elected as the guest of the Peoria *Herald Transcript's* European tour.

The following is respectfully referred to the consideration of Bemis-Marks-Adams, *et al.*: "At the request of a representative Committee of the taxpayers of Wheeling, West Va., the State Legislature has eliminated from the new charter of Wheeling the clause providing for the municipal ownership of the gas plant. The charter passed the Legislature, and has been signed by the Governor, minus the mentioned clause. Since 1871 all the illuminating gas sold in Wheeling has been manufactured and distributed from and through a works' system owned and operated by the municipality. For several years after the acquiring of the plants the same were operated at a profit to the city, and the service was as a rule very fair; but for the past 7 years the gas plant as a property, referring to its physical condition, has steadily decreased. The works have deteriorated, and the necessary repairs have not been made. The cost of manufacturing the gas has increased, while the price at which the product of the works has been sold has remained stationary. As a result of this policy the gas plant has ceased to be one of the city's profitable properties. During the past 5 years there has been a marked increase in the cost of operating the plant. This includes increase in wages, increase in price of coal, increase in price of hauling coal and of management. Year by-year the cost of operating the gas works has gone steadily skyward. In 1899 it was $76,107.85. In 1903 operating expenses advanced to $104,458.95. According to the last report filed with the City Clerk for 16 months the cost of maintaining the plant was $137,295.83. During the past 6 years the operating cost has increased $26,864.03, while the receipts have increased but $15,439.54. Ever since 1902 the City Council has been compelled to donate to the Gas Board thousands of dollars to prevent the gas works from ceasing operations altogether, and Mayor Charles Schmidt is outspoken in his condemnation of the municipal ownership of the plant."

The following is to hand under date of the 13th inst.: "On April 1 there was a change in the management of the Emporia (Kas.) Gas and Electric Light Company. The Company has opened an office at 708 Commercial street, where all business of the Company will be transacted hereafter. All accounts for gas consumed before April 1st will be collected by Mr. Watson as heretofore. Mr. H. R. Brokaw has been elected Manager, and announces that from this date the gross price of gas will be reduced from $2.50 per 1,000 cubic feet on all bills paid before the 10th of the month at the office, making the net price of gas $1.40 per 1,000 cubic feet. Considering this reduction in price a charge will be made for mantles, and a full line of appliances will be kept on hand and sold at cost. The Manager will announce from time to time such other changes as may be found necessary to meet requirements."

The City Council of Charlottesville, Va., at a meeting recently held as per advertisement, indorsed the resolution recommending that the proposed renewal and repair work on the city gas works be awarded to the Jas. Gardner, Jr., Company, of Pittsburgh, Pa., at its bid of $8,500.

Mr. George Howard has been elected President of the Georgetown (D. C.) Gas Light Company, vice the late Mr. Deebles. Mr. Howard is well known in the financial circles of Washington, and has for years been prominently identified with the National Savings and Trust Company, of which institution he was elected Treasurer in 1897.

The first week of April, in Maine as well as New York, was marked by a snowstorm of the first magnitude. One result of it in Bangor,

Me., was quite a show of forbearance on the part of the Gas Company. The last discount day came on the day when the storm was at its highest, whereupon the Company gave notice that the discount period would be extended for 48 hours.

THE Denton (Tex.) Gas Company has been incorporated with a capital of $50,000.

IT looks that the Board of Public Service, of Hamilton, O., will shortly agree upon a plan to ask for bids for leasing the public gas plant to private enterprise for a term of years.

MR. BOYEZ DANSARD has been elected President of the Monroe (Mich.) Gas Light and Fuel Company, vice Mr. H. A. Conant, resigned. Mr F. E. Gillespie, formerly connected with the Ann Arbor (Mich.) Company, has been appointed Engineer to the Monroe Company.

"L. M. M.," writing to us under date of the 12th inst., says: "During the week of April 22d to 27th, the Lincoln (Neb.) Gas and Electric Light Company will give an exhibition of applied gas and electricity on a large scale. The Lincoln Auditorium, accommodating 4,000 people, has been secured for the purpose and will be wired and piped so that elaborate demonstrations can be made in the exhibits. There will be a large number of exhibitors, both gas and electric, and the latest lighting, power and domestic appliances will be shown. All space, gas and current necessary will be furnished free by the Lincoln Company."

MR. W. F. DOLKERT has been appointed Manager of the Ludington (Mich.) Company's works.

THE annual meeting of the shareholders of the Columbus (O.) Gas and Fuel Company will be held Wednesday, May 1st.

MRS. EVELYN BIRD, of Chicago, has petitioned for an examination of the affairs of the Citizens Gas Light Company, of Nebraska City, Neb.

THAT Mr. E. G. Cowdery has spoken a final adieu to Milwaukee seems proven by the sale of his handsome residence in that city to Mr. A. C. Elser.

MR. D. V. HARRINGTON, who goes from the service of the Auburn (N. Y.) Gas Company on the 1st prox,, after a successful stewardship of 25 years, will retire permanently from active business.

THE balance sheet of the New Orleans Railway and Light Company for the 3 years named shows this, in respect of its gas and electric lighting division:

Gross Earnings.	1906.	1905.	1904.
Gas and electric depts..	$1,875,400	$1,705,807	$1,545,575

The Company expended in the past year (Dec. 31, 1906), in its electric division, $52,113, and in the gas division $97,000, which latter sum includes the cost of the gas plant at Algiers.

THE Kerr Murray Mfg. Company is to put up the new gas plant for the Lansing (Mich.) Company.

THE trouble between the Louisville (Ky.) Gas Company and its coal and coke handlers has been satisfactorily adjusted. As we understand it the Company has agreed to pay those laborers at the rate of $1.60 per day, an advance of 10 cents.

MR. H. G. LEIGH, Manager of the Citizens Gas Light Company, of Nebraska City, Neb., has been appointed Receiver of that Company, in the suit brought by Mrs. Evelyn Bird to declare the concern insolvent.

A CORRESPONDENT in Charleston, S. C., under date of the 15th inst., forwards the following: "The first of this month the householders and business people paid their gas and electric light bills under the reduced rates which went into effect then as per the agreement of some months ago made between the Council and the Company. Bills were settled on a reduction amounting to about 9 per cent., and these at first excited much comment, the great majority of the customers having lost sight of the fact that the agreement, although made last November, did not become operative until the 1st inst. Of course, you know it is a standing joke in many homes that the price of gas is not regulated entirely by the meter, and cases have been caused where a less consumption of gas has brought a higher bill at the end of the month and sometimes with a full consumption the bill was less. The sight of the generally reduced bills, coming to the hands of the householders, was attributed to the vagaries of the meters or the billing clerks by many who had forgotten about the scheduled reduction, and many a bill was paid while the payer smiled to himself or herself, believing that this was one more time in which the Lighting Company had been beaten in its charges."

MR. CHAS. V. NEWMAN, General Manager of the Moberly (Mo.) Gas and Electric Company, is authority for the statement that the betterments now underway on both its plant divisions will entail an expenditure quite close to $50,000.

THE authorities of Terre Haute, Ind., wishing to know precisely the candle power and composition of the gas supplied by the local Company, wisely decided to retain the services of Dr. John White, of the Rose Polytechnic Institute. They did not look for the services of parties not conversant with the subject. New York State please take notice.

MRS. HARRIET S. MCMURPHY has just concluded a most successful series of demonstration lectures on how and what to cook with gas, in Mason City, Ia., at the instance of the Peoples Gas and Electric Company. The lecture room was in the Daylor Building, the course was commenced the 8th inst., was concluded the 13th inst., and was attended by large audiences.

MR. J. A. BRITTON, President of the San Francisco (Cal.) Gas and Electric Light Company, the morning after the fire which partially destroyed the main power plant of the Company, estimated that the loss occasioned was not less than $2,000,000. The fire occurred the night of the 2d inst., and the service interrupted was in the heart of the city. Five firemen sustained severe injuries. April surely seems a fateful month for the Gem City of the States.

THE Ardmore (I. T.) Gas Company has purchased all the possessions owned by the Ardmore Heat and Light Company.

ONE G. D. Young, formerly in the employ of the United Gas Company, of Wichita, Kas., was recently arrested, charged with having tapped the main pipe in front of his residence, thus affording a plentiful and cheap supply of gas for lighting, cooking and heating.

ON and after the 1st prox. the selling rate will rule at $1.90 per 1,000 cubic feet, a concession of 10 cents per 1,000. So reads a notice just issued by the proprietors of the Ogdensburgh (N. Y.) Gas Company.

A VERY interesting account of a novel way of milking cows was recently described in the Washington (D. C.) *Star*. The method is in use on the dairy farm of Mr. Walter R. Powell, at Rosecroft, Md., a suburb just outside the District of Columbia line. Patent milkers are used, and the power is furnished by a gas engine of 5-horse power.

HERE is the balance sheet of the Tacoma (Wash.) Gas Light Company, for the periods specified:

February.	1907.	1906.	Increase.
Gross.....	$14,761.27	$10,847.85	$3,913.42
Operating expenses..	7,706 86	5,591.71	2,115.15
Net.....	7,054.41	5,256.14	1,798.27
Nine months (net)...	52,771.61	33,734.00	19,038.28

HERE is an advertising scheme that certainly is original. It was forwarded us by a correspondent who is too modest to sign himself. "The Carthage (Mo.) Gas Company is anxious to make Carthage more beautiful, and to that end is going to offer a prize for the best kept lawn in the city from April 15 to November 1, 1907, to include all properties assessed up to $2,000, the object being to limit the contest to properties of an actual value of $5,000 or less. Anyone eligible under this rule who sends in his or her name and address to the Company may become a contestant. The prize given will be a refund of the winner's gas bill for the 12 months ending November 1, 1907. Mr. W. L. Braerton, of the Company, said, when interviewed in regard to the matter, that the Company not only considered the offer of such a prize a good way to advertise, but that they want to impress upon the people of Carthage that they are interested in the city and that they are a local institution with their interests here. 'Carthage is certainly a beautiful city,' said he, 'but we want to see it more so and if our Company can do anything to that end we shall be gratified.' Three competent judges, Carthage men, will be selected to pass upon the merits of the contest and award the prizes but their names will of course not be made known until the winners are announced."

THE petition to the Legislature of Grant M. Kierstead and others, for the incorporation of the Citizens Gas Light Company, of Hartford, Conn., has been withdrawn.

THE AMERICAN GAS LIGHT JOURNAL

A. M. CALLENDER & CO.,
PROPRIETORS.

THOS. J. CUNNINGHAM,
ELBERT P. CALLENDER,
EDITORS.

PUBLISHED ON EACH MONDAY OF THE YEAR AT
No. 42 Pine Street, New York.
Telephone, 2996 John.

TERMS:

SUBSCRIPTION—Three Dollars per annum, in advance.
Single copies, 10 cents.

The JOURNAL is the official organ of the
NEW ENGLAND ASSOCIATION OF GAS ENGINEERS.

MONDAY, APRIL 22, 1907.

The Market for Gas Securities.

The market for Consolidated was a very peculiar one last week, a squeeze for the short end jumping Consolidated to 134¾. When that immediate case was attended to, the values sagged off to those of the closing of last week. The opening to-day (Friday) was made at 130½ to 132, but nothing had been disposed of at noon.

Brooklyn Union maintains its recent markings fairly well, although there is slight demand for it; more's the wonder! Massachusetts gas is a trifle weaker, and Peoples, of Chicago, is also in the doldrums. The general state of the railroad share market is undoubtedly responsible for the situation at large, which seems to be all on the low side.

Gas Stocks.

Quotations by George W. Close, Broker and Dealer in Gas Stocks.

16 WALL STREET, NEW YORK CITY.

APRIL 22.

☞ All communications will receive particular attention.

☞ The following quotations are based on the par value of $100 per share.

N. Y. City Companies	*Capital.*	*Par.*	*Bid.*	*Asked.*
Consolidated	$73,177,000	100	130⅛	132
Central Union Gas Co.—				
1st 5's, due 1972, J. & J.	3,000,000	1,000	101	104
Equitable Gas Light Co.—				
Con. 5's, due 1932, M. & S.	1,000,000	1,000	..	105
Mutual	3,500,000	100	190	235
New Amsterdam Gas Co.—				
1st Con. 5's, due 1948, J. & J.	11,000,000	1,000	95	98
New York & Richmond Gas Co. (Staten Island)	1,500,000	100	37	43
1st Mtg. Gold Bds. 5 p.ct.	1,000,000	..	98	104
Northern Union—				
1st 5's, due 1927, J. & J.	1,250,000	1,000	101	103
New York and East River—				
1st 5's, due 1944, J. & J.	3,500,000	1,000	108	111
Con 5's, due 1945, J. & J.	1,500,000	..	104	110
Standard	5,000,000	100	140	160
Preferred	5,000,000	100	155	175
1st Mtg. 5's, due 1930, M. & N	1,500,000	1,000	104	108
The Brooklyn Union	15,000,000	1,000	112	125
1st Con. 5's, due 1948, M. & N	15,000,000		107	..
Yonkers	299,650	500	130	..
Out-of-Town Companies.				
Bay State	50,000,000	50	¼	⅝
" Income Bonds	2,000,000	1,000	..	75
Binghamton Gas Works	450,000	100	..	65
" 1st Mtg. 5's	509,000	1,000	95	100
Boston United Gas Co.—				
1st Series S. F. Trust	7,000,000	1,000	82	85
2d " " "	3,000,000	1,000	47½	50
Buffalo City Gas Co.	5,500,000	100	9	10
" " Bonds, 5's	5,250,000	1,000	75	80
Capital, Sacramento	500,000	50	..	35
Bonds (6's)	150,000	1,000	..	..
Chicago Gas Co. Guaranteed Gold Bonds	7,650,000	1,000	104	106½
Cincinnati Gas and Electric Co.	29,500,000	100	99¼	99¾
Columbus (O.) Gas Co., 1st Mortgage Bonds	1,500,000	1,000	90	..
Columbus (O.) Gas Lt. & Heating Co.	1,682,750	100	87	88
Preferred	3,026,500	100	107½	108
Consumers, Toronto	2,300,000	50	200	204
Consolidated, Baltimore	11,000,000	100	.	90
Mortgage, 6's	3,600,000	..	..	118
Chesapeake, 1st 6's	1,000,000	..	..	..
Equitable, 1st 6's	910,000	..	..	..
Consolidated, 1st 5's	1,490 000	..	..	112
Consolidated Gas Co. of N. J.	1,000,000	100	15	17
Con. Mtg. 5's	880,000	1,000	92	95
Bonds	75,000	..	..	100
Detroit City Gas Co.	5,000,000	50	..	50
" Prior Lien 5's	4,618,000	1,000	..	98
Detroit Gas Co., 5's	351,000	1,000	75	80
" Inc. 5's	16,000	100	98½	100
Equitable Gas & Fuel Co., Chicago, Bonds	2,000,000	1,000	..	101
Essex and Hudson Gas Co.	6,500,000	..	39	40
Fort Wayne	2,000,000	..	..	..
" Bonds	2,000,000	..	55	..
Grand Rapids Gas Lt. Co. 1st Mtg. 5's	1,225,000	1,000	104½	105
Hartford	750,000	25	190	200
Hudson County Gas Co., of New Jersey	10,500,000	..	110	112
Bonds, 5's	10,500,000	..	107¼	108½
Indianapolis	2,000,000	..	60	70
" Bonds, 5's	2,650,000	..	104½	105
Jackson Gas Co.	250,000	50	82	..
" 1st Mtg. 5's	290,000	1,000	97	100
Kansas City Gas Light Co., of Missouri	5,000,000	100	..	36
Bonds, 1st 5's	3,822,000	1,000	102	104
Laclede, St. Louis	10,000,000	100	..	05
Preferred	2,500,000	100	95	110
Bonds	10,000,000	1,000	104	104¼
Lafayette Gas Co., Ind.	1,000,000	100	..	60
Bonds	1,000,000	1,000	60	65
Louisville	2,570,000	50	143	145
Madison Gas & Elec. Co. " 1st Mtg. 6's	350,000	1,000	106	108¾
" 6 per cent. scrip, due 1910	100,000	25	85	87
Massachusetts Gas Companies of Boston	25,000,000	100	61	61¼
Preferred	25,000,000	100	85¼	86
Montreal, Canada	2,000,000	100	218	218¾
Nashville Gas Lt. Co.	1,000,000	100	110	..
Newark, N. J., Con. Gas Co.	6,000,000	..	56	58
Bonds, 6's	6,000,000	..	137	138
New Haven	2,000,000	25	200	..
Peoples G. L. & Coke Co., of Chicago	25,000,000	100	91¾	92¼
Peoples Gas Lt. & Coke Co., Chicago, 1st Mortgage	20,100,000	1,000	..	..
" 2d "	2,500,000	1,000	104	..
Rochester Gas & Elec. Co.	2,150,000	50	88	..
Preferred	2,150,000	50	118	..
Consolidated 5's	2,000,000	..	104½	105¼
San Francisco, Cal.	15,800,000	100	..	..
St. Joseph Gas Co. 1st Mtg. 5's	751,000	1,000	92	..
St. Paul Gas Light Co	1,500,000	100	45	47
1st Mortgage 6's	650,000	1,000	113	116
Extension, 6's	600,000	1,000	112½	115
General Mortgage, 5's	2,465,000	1,000	96¼	..
Syracuse, N. Y.	1,975,000	100	50	55
Bonds	2,047 000	1,000	102	..
Washington, D. C	2,800,000	20	292½	300
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ANNUAL MEETING.

OFFICE OF THE UNITED GAS IMPROVEMENT CO.,
N. W. CORNER BROAD AND ARCH STS.,
PHILADELPHIA, April 18, 1907.

The Annual Meeting of the Stockholders of The United Gas Improvement Company will be held at the office of the Company, Northwest Corner of BROAD AND ARCH STREETS, PHILADELPHIA, Monday, May 6, 1907, at 12 o'clock, noon, when an electing will be held for a President and six (6) Directors, to serve for the ensuing year, and such other business transacted as may be brought before the meeting. The stock transfer books will be closed from 3 P.M., Wednesday, April 24, until 10 A.M., Tuesday, May 7.

1663-2 W. F. DOUTHIRT, Secretary.

Estimates furnished for the erection of complete gas works or the extension and modernizing of old works. All work warranted. Both water gas and coal gas.

EMPIRE GAS IMPROVEMENT & CONSTRUCTION COMPANY,
1628-tf 49 Wall Street, New York

Position Wanted

As Solicitor and Appliance Man.

Twelve years' practical experience in distribution work. Can also take charge of fitting department and collecting. X-No. 1 references as to ability as solicitor and all-round distribution man. Address, "S. & F. D.,"
1663-2 Care this Journal.

Position Wanted

By Young Man in Gas Manufacturing Plant.

Coal or water gas. Ten years' experience. West preferred. References.

Address, "POSITION,"
1663-1 Care this Journal.

Position Wanted

By a Practical Man of Long Experience in Concentrating and Making Sulphate and Aqua Ammonia.

Can design and erect my own apparatus.
1664-1 Address, "AMMONIA," care this Journal.

WANTED,

Situation by a Young Man of Very Thorough Experience in the Gas Business.

Is making a specialty of promotion, and can offer good letters of reference.

Address, "C. M. W.,"
1662-2 Care this Journal.

GAS WORKS' MANAGER AND CHEMIST,

Age 29, late of Gas Light and Coke Co., London and Birmingham Corporation, is open to accept position. Practical, scientific and works' training. Up to date in every department and works' management, inclined and horizontal regenerative settings, carbureted water gas, residuals recovery, cyanide and sulphate manufacture, distribution, high pressure lighting. Excellent qualifications and testimonials.

Address, "T. W. G.,"
1662-2 Care this Journal.

Position Wanted.

A Capable Manager and Superintendent,

Now employed, desires a position as manager or superintendent of gas, or combined gas and electric plants, in city of 15,000 to 25,000 population. Successful record. Southern or Middle States location preferred.

Address, "P. T. A.,"
1641-tf Care this Journal.

WANTED,

Position as Superintendent of Gas Company,

By young married man of 16 years' experience in all its branches. Is now superintendent of gas company of 30,000,000 cubic feet. Will have to give present company 60 days' notice. Best of references.

1652-tf Address, "CAPABLE," care this Journal.

WANTED,

Position as Manager or Superintendent of a Gas Company.

Party is a young married man who has had 8 years' practical and up-to-date experience in the manufacturing, distribution, construction and office systems of business of large and small coal and water gas works. A place of from 20,000 to 100,000 population and in the West preferred. Experienced with North and South labor. Address, "M. C. B.,"
1661-3 Care this Journal.

WANTED,

Position as Manager or Superintendent of medium sized gas company, or as head of distribution or street department of a large works. At present superintendent of distribution of a concern with 400 miles of main and a daily sendout of 6,000,000. Best of references and good reasons for wishing a change.

1661-3 Address, "C B. A.," care this Journal.

Situation Wanted

By Young Man as Superintendent or Manager of Gas Company Making either Coal or Water Gas.

Has had practical experience in all branches of the manufacture and distribution of gas, extension of business on modern lines and up-to-date office methods. First class references. Address, "RELIABLE," care this Journal.
1663-1

WANTED,

A Gas Maker who Thoroughly Understands the Making of Water Gas,

To operate a small plant in a growing town near New York city. State age and experience and what salary required. Address, "G. C.,"
1661-1 Care this Journal.

WANTED.

Two Good Coal and Water Gas Makers.

Steady, sober and industrious. None other need apply. Steady employment for right parties. Good wages.

BERWICK CONSOLIDATED GAS COMPANY,
1661-3 Berwick, Pa.

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Superintendent to Take Charge of Water Gas Plant.

State age, nationality and experience and salary required. Small town near New York city.
1663-1 Address, "T. R.," care this Journal.

FOR SALE,

One G-Tank Acme Oil Gas Generator, with governors.
One Roots, Size, One-Half Exhauster.

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1662-8 LA PORTE, IND.

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I have a new continuous process for manufacture of producer gas, water gas, coal gas. The apparatus and process patented lately. Cost of plant and cost of manufacture lower than ever before known for equal service. Works satisfactorily in small or large units. Rights of territory for sale.

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Dimensions, 10 feet by 14 feet by 3 feet deep, with dry center valve and connecting pipes 10 inches diameter. Seal 16 inches deep. Inquire of the

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1663-4 DAYTON, O.

UNUSUAL OPPORTUNITY.

RETIRING FROM BUSINESS.

Will sell my tray and planing mill business. Established for 25 years. Three months' work ahead. $35,0 0 invested.

JOHN CABOT.
1663-tf 1412 Adams St, Hoboken, N. J.

FOR SALE.

We have for sale 430 three-light, second-hand prepayment meters, various makes.

Will repair and put in first-class order. For information and prices write to

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The Laclede Gas Light Company,
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Alcohol its Manufacture from Farm Products and De Naturing. By F. B. WRIGHT.
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NO EXTRA LABOR OR OPERATING EXPENSES.
IMPROVED AMMONIA CONCENTRATOR.
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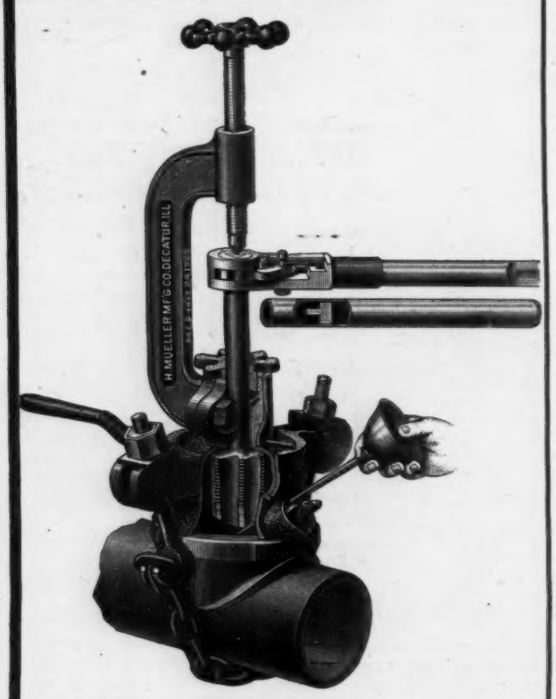

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If you have no use for a tapping machine you don't need one. But if you have use for one you certainly need a MUELLER MACHINE.

BECAUSE

They are solidly built and do the work fast and clean cut.
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They are made for making taps up to 4 inches.
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Unconditionally Guaranteed.

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If your old machine needs attention send it in. We will make it practically as good as new at moderate cost.

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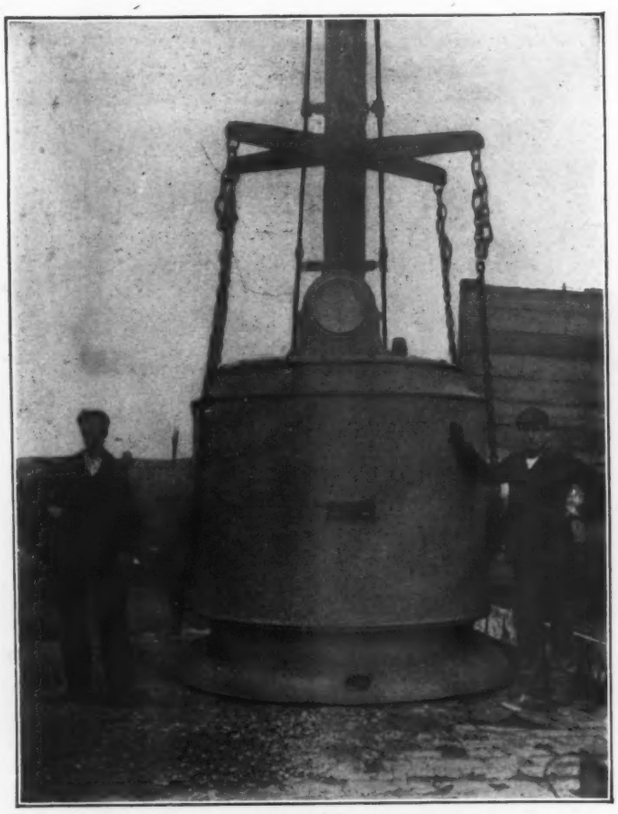

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ROTARY STATION METER

FOR THE

CONSOLIDATED GAS COMPANY OF NEW YORK.

Dimensions: Base 84 in.; Face to Face, Flanges 108 in.; Height 99½ in.; Connections 20 in.

The above illustration was made from a photograph taken at the Manchester works of our English company on the day (Aug. 11) this meter was shipped.

This ***Four Million*** foot Rotary Meter is about to be installed at the 21st Street station of the Consolidated Gas Company in the City of New York.

One-half the Cost—One-tenth the Space.

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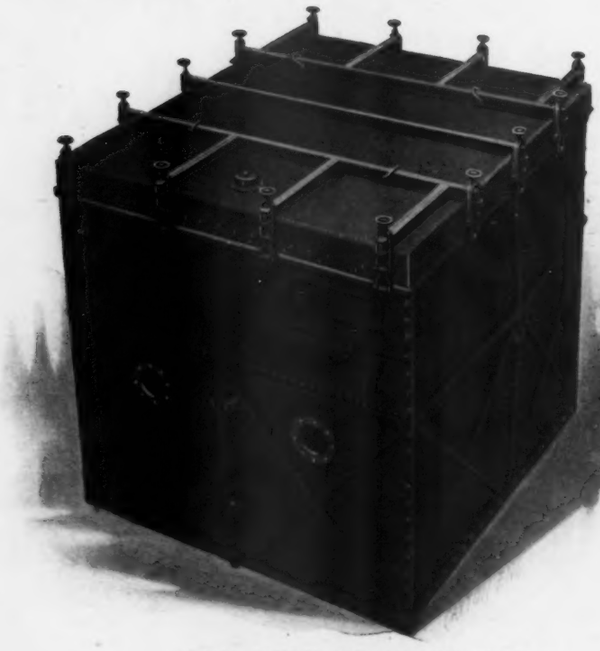

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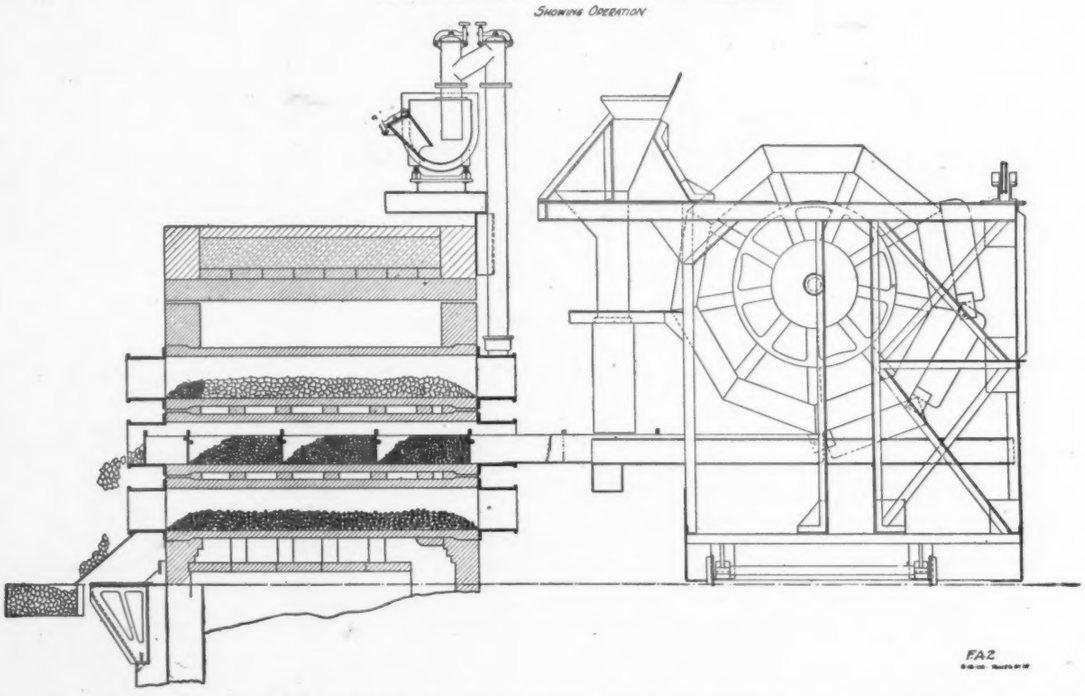

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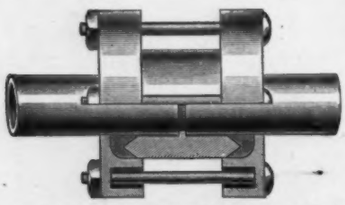
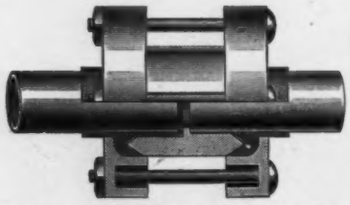
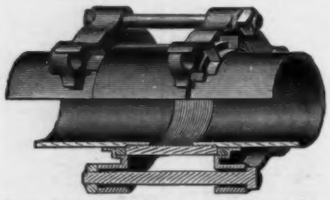

Regular Coupling, Style 1, for Plain End Wrought Iron Pipe.


Insulating Coupling, Style 5, for Plain End Wrought Iron Pipe,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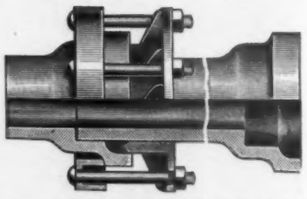
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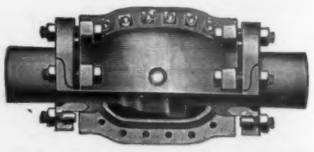
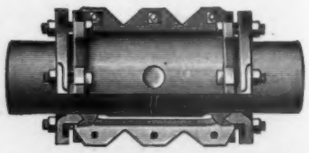
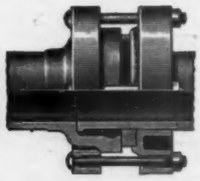

Split Sleeve for Repairing Broken Bell on Cast Iron Pipe.


Split Sleeve for Repairing Broken or Cracked Cast Iron Pipe.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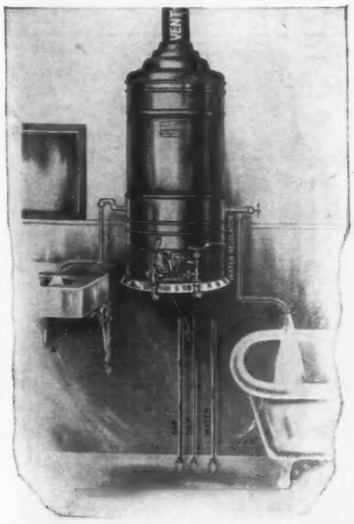

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2	$4 00	¾ Inch.	2¼	34⅝	12	70 Pounds.
10	52,00	¾ "	2½	35	12	90 "
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These prices include Safety Valves and Unions, one Bent Outlet Spout, but no extra fittings.

A white porcelain enameled steel shelf and nickel plated bracket are supplied with each heater.

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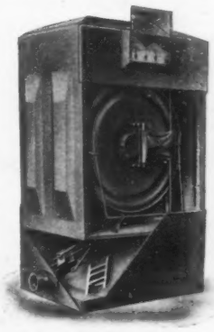
NO DUMPING OF METERS TO GET THE WATER OUT.

Permits Water and other liquids of condensation in House Service Pipes to flow back through Service Pipe to Mains by Natural Gravity.

Prevents Danger of Accidental Asphyxiation.



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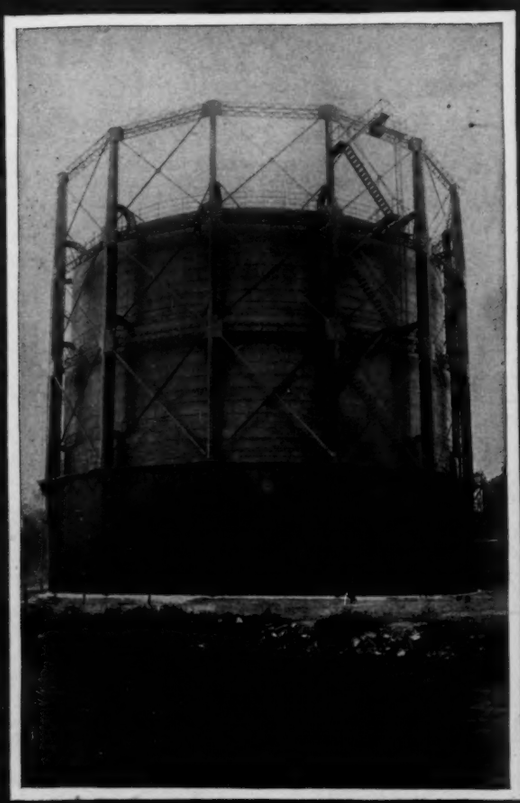

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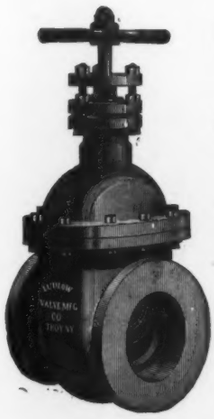

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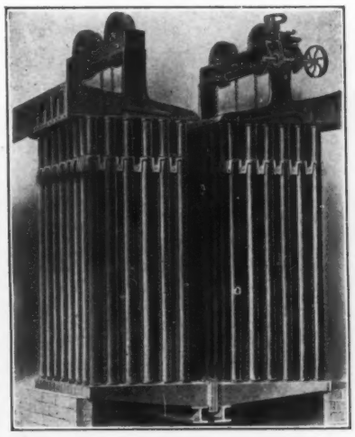

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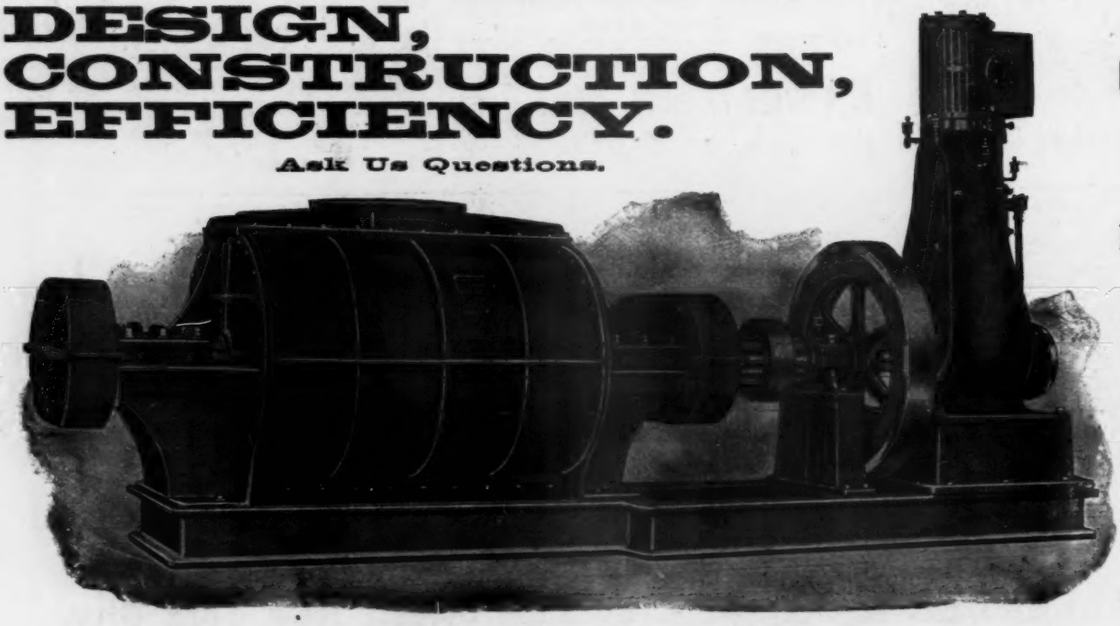

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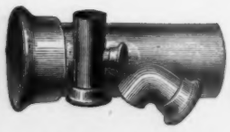

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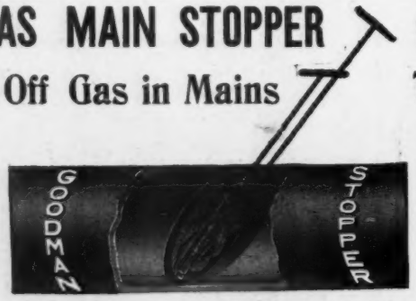
For Shutting Off Gas in Mains

Any size gas main can be shut off in 30 seconds. : : :



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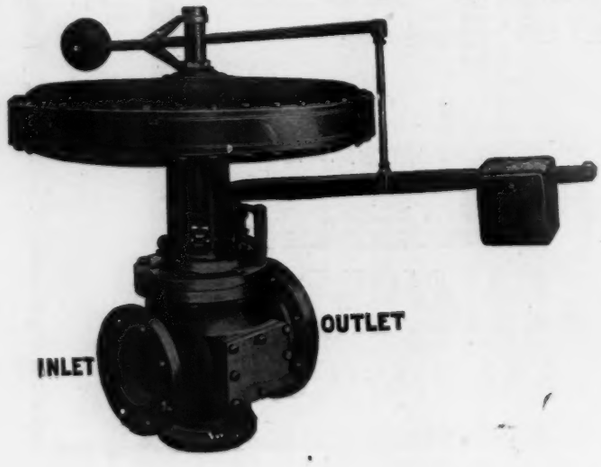

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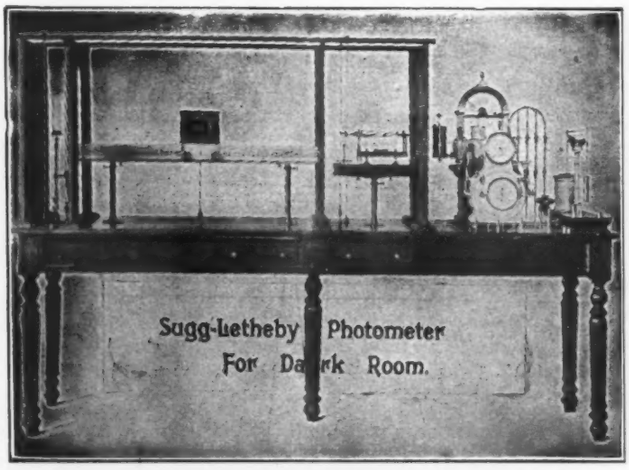
MAY, 1907.

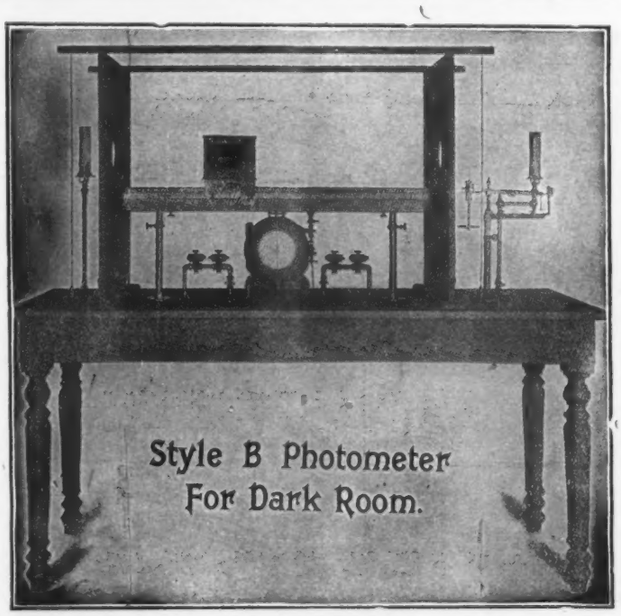
Day of Week.	Date.	Table No. 1. FOLLOWING THE MOON. Light.	Extinguish.
Wed.	1	7.20 PM	12.00 PM
Thu.	2	7.20	1.00 AM
Fri.	3	7.20	1.50
Sat.	4	7.20 LQ	2.40
Sun.	5	7.30	3.20
Mon.	6	7.30	3.50
Tue.	7	7.30	3.50
Wed.	8	7.30	3.50
Thu.	9	7.30	3.50
Fri.	10	7.30	3.50
Sat.	11	7.30 NM	3.50
Sun	12	7.40	3.50
Mon.	13	7.40	3.50
Tue.	14	7.40	3.50
Wed.	15	7.40	3.50
Thu.	16	10.00	3.50
Fri.	17	10.40	3.50
Sat.	18	11.20	3.50
Sun.	19	12.00	3.40
Mon.	20	12.30 AM FQ	3.40
Tue.	21	1.00	3.40
Wed.	22	1.30	3.40
Thu.	23	2.00	3.40
Fri.	24	2.30	3.40
Sat.	25	3.10	3.40
Sun.	26	No L.	No L.
Mon.	27	No L FM	No L.
Tue.	28	No L.	No L.
Wed.	29	7.50 PM	10.50 PM
Thu.	30	7.50	11.50
Fri.	31	7.50	12.40 AM

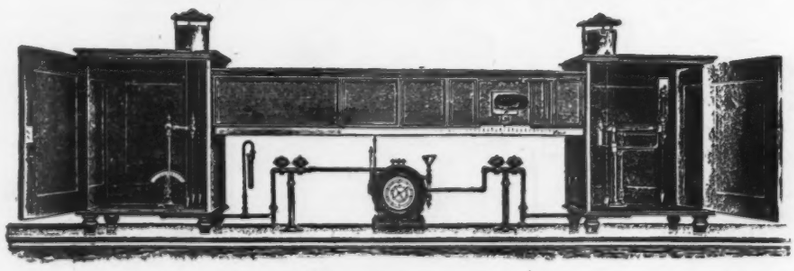
TOTAL HOURS DURING 1907.

By Table No. 1.

	Hrs.Min.
January	211.10
February	193.40
March	182.10
April	167.00
May	157.00
June	145.30
July	151.50
August	162.30
September	175.30
October	202.40
November	209.30
December	231.50
Total, yr.	2190.20







Closed Photometer For Light Room.

CIRCULARS SENT ON REQUEST.

PUBLIC LIGHTING TABLE.

MAY, 1907.

Day of Week.	Date.	Table No. 2. NEW YORK CITY. ALL NIGHT LIGHTING. Light.	Extinguish.
		P. M.	A.M.
Wed.	1	6.45	4.00
Thu.	2	6.45	4.00
Fri.	3	6.45	4.00
Sat.	4	6.45	4.00
Sun.	5	6.45	4.00
Mon.	6	6.45	4.00
Tue.	7	6.55	3.40
Wed.	8	6.55	3.40
Thu.	9	6.55	3.40
Fri.	10	6.55	3.40
Sat.	11	6.55	3.40
Sun.	12	6.55	3.40
Mon.	13	6.55	3.40
Tue.	14	7.00	3.30
Wed.	15	7.00	3.30
Thu.	16	7.00	3.30
Fri.	17	7.00	3.30
Sat.	18	7.00	3.30
Sun.	19	7.00	3.30
Mon.	20	7.00	3.30
Tue.	21	7.10	3.15
Wed.	22	7.10	3.15
Thu.	23	7.10	3.15
Fri.	24	7.10	3.15
Sat.	25	7.10	3.15
Sun.	26	7.10	3.15
Mon.	27	7.10	3.15
Tue.	28	7.15	3.15
Wed.	29	7.15	3.15
Thu.	30	7.15	3.15
Fri.	31	7.15	3.15

TOTAL HOURS DURING 1907.

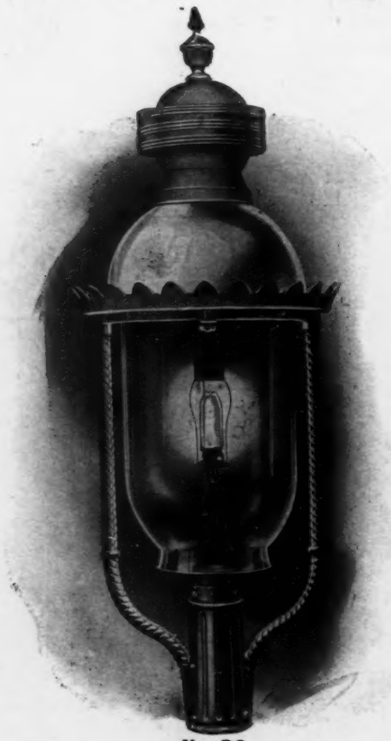
By Table No. 2.

	Hrs.Min.
January	423.20
February	355.25
March	355.35
April	298.50
May	264.50
June	234.25
July	243.45
August	280.25
September	321.15
October	374.30
November	401.40
December	433.45
Total, yr.	3987.45

NEW YORK, 318 West 42d Street. BOSTON, 820 Beacon Building. PHILADELPHIA, Broad and Arch Streets. ST. LOUIS, 712 Roe Building. CHICAGO, 218 La Salle Street. SAN FRANCISCO, 512 Oak Street.

WELSBACH STREET LIGHTING COMPANY

....OF AMERICA....



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Uniformly SUCCESSFUL in 150 Cities and Towns.

By means of the Welsbach System of street lighting the superiority of GAS over electricity for street lighting has been fully demonstrated.

POINTS OF MERIT:

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IT LIGHTS THE STREET.

Where there are no gas mains we can furnish an equally good light by our SELF-GENERATING NAPHTHA WELSBACH BURNER, and thereby supply a uniform light in all localities.

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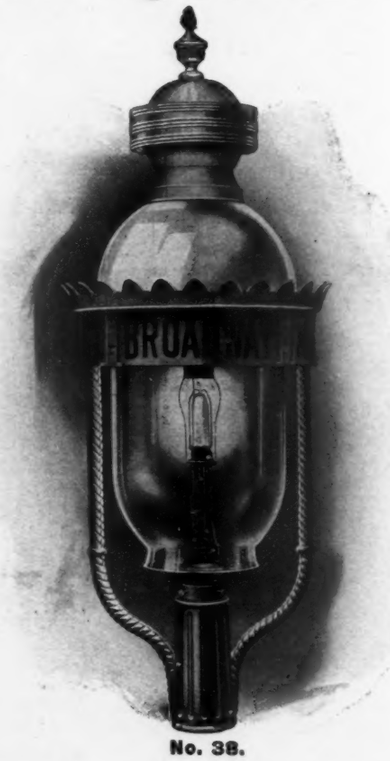

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Lowest Gas Consumption.
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Will Fit Any Fixture.
Will Not Flash Back.
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Will Not Discolor Fixtures.
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Best Welsbach Quality.
Extra Strong and Durable.
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Rich Mellow Light.

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Council Bluffs, Ia. (2d contract).
Seattle, Wash. (2d contract).
Philadelphia, Pa.
Waterbury, Conn.
Manchester, N. H.
Allentown, Pa.
Omaha, Neb.
Muskegon, Mich.
Nazareth, Pa. (2d contract).
Lewistown, Pa.
Greenville, Tex.
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Jefferson City, Mo.
Peekskill, N. Y. (2d contract).
Waterville, Me.
Washington, D. C. (4th contract).
Lawrence, Mass. (3d contract).
Hampton, Va.
Aurora, Ills. (2d contract).
Milwaukee, Wis.
Syracuse, N. Y. (2d contract).
Davenport, Ia.
S. Brooklyn, N. Y. (3d contract).
Delray, Mich.
Albert Lea, Minn. (2d contract).
Leominster, Mass. (2d contract).
Clinton, Mass.

TOTAL SETS INSTALLED IN 1906, ... 41
TOTAL SETS TO DATE, ... 634
TOTAL DAILY CAPACITY, ... 502,555,000 cu. ft.

Tar Extractors for Carburetted Water Gas.
Photometrical Apparatus.
Gas Analysis Apparatus.
Recording Gauges.
Straight Standpipe System for Coal Gas Retorts.
Straight Standpipe Cleaners.

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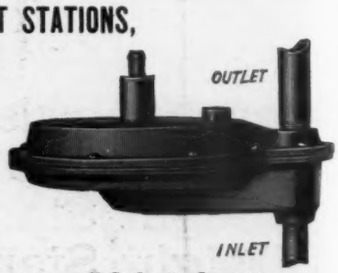

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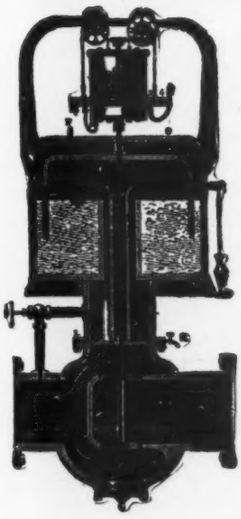

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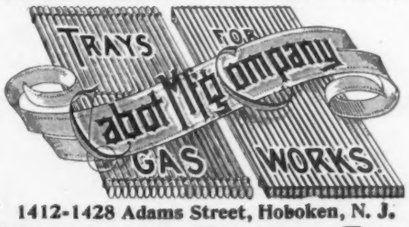

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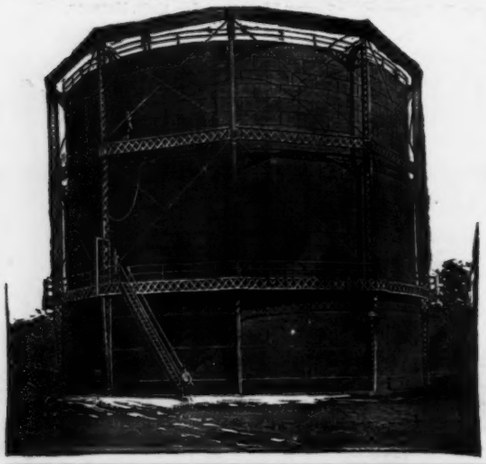

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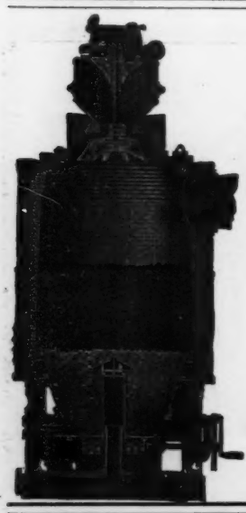

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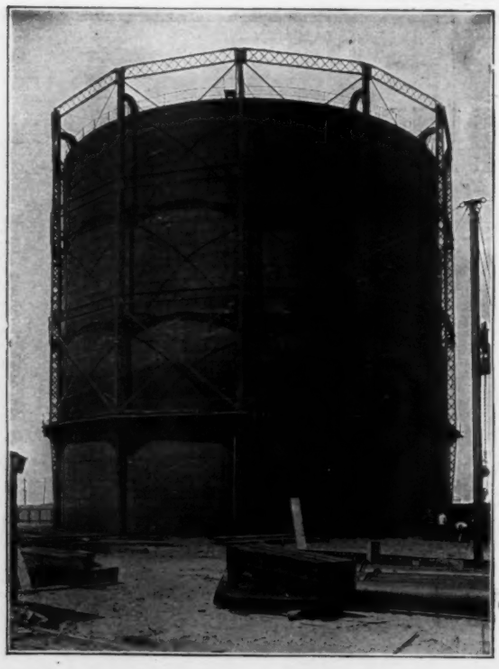

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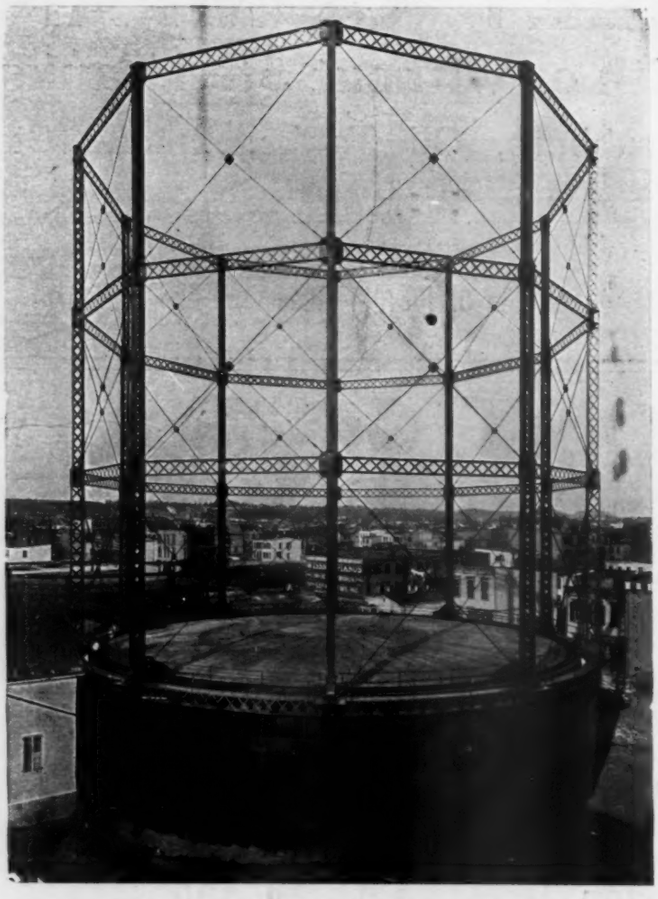

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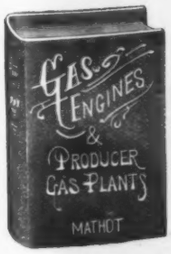

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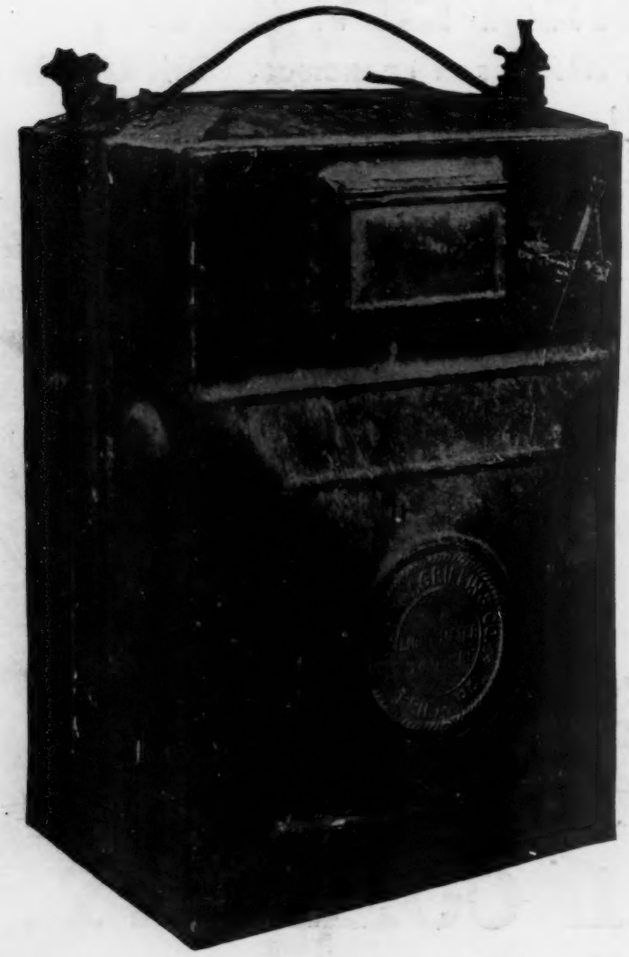

This is a photograph of a 3-light regular meter out of a lot of meters received from the Coatesville Gas Co., Coatesville, Pa., to be repaired and converted into prepayment meters.

AFTER.

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